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BRIDGING THE INFO GAP

A White House adviser says the world's richest nations have much to do to close the global "digital divide." Page 33

WIRELESS WORRIES

Security for wireless transactions is a major concern for e-commerce companies. Page 72

WIN 95 LOSES

The next version of the Office suite will be incompatible with the widely used OS. Page 8

COMPUTERWORLD

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SEPTEMBER 4, 2000 • VOL. 34 • NO. 36 • $5 COPY

MORE USERS SLAM SUN FOR MEMORY ISSUE

Hardware maker's handling of problem, frequency of crashes are major complaints

BY JAIKUMAR VIJAYAN

More users affected by a long-standing cache memory problem on Sun Microsystems Inc.'s Ultra Enterprise servers are slamming Sun's handling of the issue and its attempt to keep users quiet about it.

Sun officials didn't return repeated calls last week seeking comment for this story.

Since *Computerworld* first reported the problem last week, additional users have come forward to recount similar experiences. Topping their list of complaints are the frequency of server crashes caused by the problem, fixes

Sun Slammed, page 16

QUIETLY, PRIVATE E-MARKETS RULE

E-commerce driven by links to known suppliers

BY JULIA KING
ASPEN COLO

Public and industry-sponsored business-to-business marketplaces that boast access to thousands of new buyers and sellers are grabbing all the headlines. But behind the scenes, tens of thousands of companies are opting for private digital exchanges to electronically link a deliberately reduced number of key suppliers.

MIKE MacKENTY of Nypro

Take Nypro Inc. The $600 million injection molding company buys the bulk of its raw

B2B Exchanges, page 16

LINUX LEAPS TO SUPERCOMPUTER

OS used for seismic data a second time

BY JULIA KING

Houston-based Conoco Inc. announced last Wednesday that it has built and deployed a huge, new Linux-based supercomputer to analyze massive amounts of seismic data gathered in the process of exploring for oil and gas.

The Intel-based geophysical computer — which boasts enough storage capacity to

Supercomputer, page 14

SKY-HIGH SALARIES

COMPENSATION FOR IT PROFESSIONALS IS RISING BY double digits again, as companies pander to workers who have become much bolder with their demands. CIO salaries spiked up to an average of $133,000 — plus $31,000 in bonus money — and paychecks are fatter in the IT cubicles, too. But stock options are starting to lose their luster. *Report begins on page 48.*

COMPUTERWORLD'S 14th Annual SALARY SURVEY

THE BIG LAN ON CAMPUS IS WIRELESS

Ethernet cards, laptops greet this fall's students

BY BOB BREWIN AND JAMES COPE

(First in a two-part series)

As students head back to school, many are tapping into a new network environment that supports the shift of computers from the lab to the classroom: wireless.

Wireless LAN technology now provides ubiquitous computing for students ranging from first-graders in Kansas City, Kan., to graduate students at Wake Forest University in Winston-Salem, N.C.

At the college level, the technology allows students in the cafeteria to access course documents housed on university servers or to e-mail papers to professors in between classes. It lets administrators reclaim real estate that once housed computer labs, and it means the schools don't have to deal with wiring old buildings to support new technologies.

WAKE FOREST gave wireless Ethernet cards to 650 freshmen

And although wireless LANs can cost more than wired ones — the cost of a single access point runs between $1,000 and $2,000 — they can be worthwhile where utility, applications and ease of use overcome

Wireless LANs, page 93

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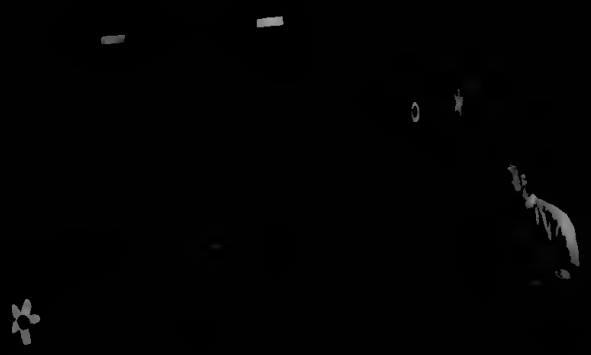

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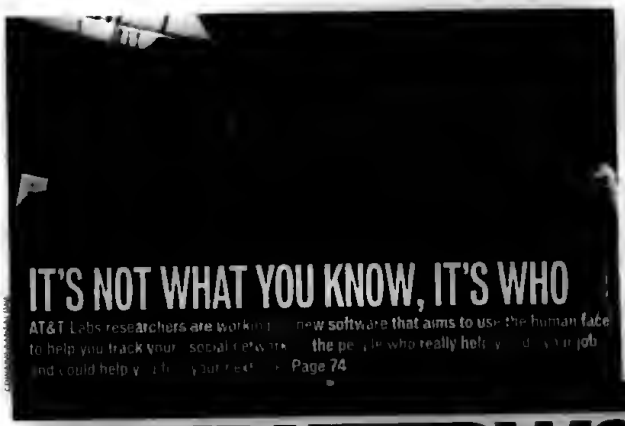

IT'S NOT WHAT YOU KNOW, IT'S WHO

AT&T Labs researchers are working on new software that aims to use the human face to help you track your social networks — the people who really help you do your job and could help you find your next ... Page 74

ROBOTS TO THE RESCUE

Robots are being developed with the sensory and decision-making functions that will allow them to perform successful search-and-rescue missions at disaster scenes. Page 70

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QUICKSTUDY

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ONLINE

■ Are IT salaries soaring too quickly? Or not quickly enough? Is the shortage of IT workers getting worse? Or is it overblown? Post your opinion on our new **Careers/Salary Forum**, moderated by careers editor David B. Weldon, at *www.computerworld.com/forums/*.

■ On our **Careers page**, see an interview with IT job placement board Dice.com's Jeff Dickey-Chasins, who discusses trends spotted from his company's survey of 10,000 employers and job hunters. *www.computerworld.com/careers/*

■ On our **Security Watch page**, read Deborah Radcliff's report from the latest Critical Infrastructure Assurance Summit, including a list of questions to ask yourself about your company's security capabilities. *www.computerworld.com/careers/*

OPINIONS

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36 TOM REILLY, attorney general of Massachusetts, says the dispute over Toysmart.com's customer information can set the bar for online privacy.

42 PAUL A. STRASSMANN looks past an insurer's hype of its knowledge management efforts and sees a financial performance that doesn't match up.

AT DEADLINE

Judge: Microsoft to Pay Bristol $1M

A federal judge last week said Bristol Technology Inc. deserves $1 million in punitive damages from Microsoft Corp., not the $1 a jury originally awarded in the case. Danbury, Conn.-based Bristol had charged that Microsoft sought to end access to Windows programming interfaces and source code, which Bristol used to create Wind/U, a product that allows porting of Windows to other operating systems. In July 1999, a jury cleared Microsoft of antitrust violations but found that the company had violated Connecticut's Unfair Trade Practices Act. Microsoft will "likely appeal," said a company spokesman.

Online Sales Hit $5.5B in Q2

The U.S. Census Bureau's most recent quarterly survey of online retail sales in the U.S. showed a 5.3% increase over the estimate for the previous quarter. Online retail sales in the second quarter totaled $5.52 billion, or about 0.68% of the value of all retail sales in the U.S.

Amazon Posts New Privacy Policy

Amazon.com Inc. last week posted a new privacy policy on its Web site and will e-mail all of its customers to inform them of it. One key modification is a promise that Seattle-based Amazon won't trade personal data to other companies without first getting permission from individual customers. The company previously reserved the right to buy, sell and trade such information at will, although a spokeswoman said it never actually did so.

Short Takes

To regain profitability, MERISEL INC., a technology products distributor in El Segundo, Calif., said it is cutting 700 jobs in the U.S. and Canada. . . . DELTA AIR LINES INC. announced an Internet e-commerce business unit to coordinate all business-to-business, business-to-consumer and business-to-employee activity within the company.

CEOs to CIOs: Get Strategic or Get the Boot

But IT duties may be too varied for one person, analyst says

BY SAMI LAIS

THREE CHIEF executives of U.S. organizations attending a recent conference said that in the past few months, they have either redefined the roles of their CIOs or just given them the boot for not embracing a more business-oriented strategy.

"We replaced our CIO yesterday," said one CEO, consulting his watch. "The axe should have dropped on the old one, and the new one should have started by now."

The former CIO "kept talking technology," the CEO complained. "He wasn't focused on how the technology could serve the business."

That scenario highlights a growing problem, said Giga Information Group Inc. analyst Peter McAteer, who sparked the comments with his presentation at Computer Associates International Inc.'s recent CEO retreat in Colorado Springs. Information technology has become so fundamental to a business that IT management issues are too numerous and varied to be defined in a single role, he said.

"It's illogical to look for a knowledge expert with phenomenal communication skills," he said. "You want Superman, and he doesn't exist."

At emergency medical services supplier American Medical Pathways in Aurora, Colo., primary IT responsibilities are divided between two positions, said CEO Steve Murphy.

A technologist balances between managing IT and answering technology questions, while a strategist ensures "we're asking the right technology questions to meet our big objectives," Murphy said.

At Montana State Fund, a workers' compensation insurance broker in Helena, CEO and President Carl Swanson has instituted a reorganization.

"With 200 employees, we're too small to have separate CIO, CTO and COO positions," Swanson said.

The restructuring involved a split of the company's IT responsibilities, he said. Two senior vice presidents, one concerned with running IT systems, the other responsible for integrating IT with business objectives, will report to Swanson when the reorganization is complete Nov. 8.

"We need to work closely with the IT people," said Mark Barry, who will be Montana State Fund's new corporate support vice president, the man charged with business integration. "But we need to understand the business, not just the technology."

"Role-splitting is only part of the issue," McAteer said. "CEOs need to become more technically literate. Ultimately, they're the ones who make the [CIO hiring] decisions, and if they make poor selections, which is suggested by the high turnover rate for CIOs, they have to take responsibility. Managing the culture is part of the CEO's job."

The best way to manage the culture and structure IT responsibility is different at every organization, McAteer said.

At a new dot-com, for example, growth is often so rapid that it makes static role definitions useless, he said.

When a brick-and-mortar company sets up a dot-com as a subsidiary, the subsidiary's hierarchy often mirrors the parent's, he said. Duplicating the parent's division of responsibility is unlikely to suit the smaller organization, he said. ▶

Tragic Flaws: Why CIOs Fail

In the new CIO or chief technology officer role, technologists are more likely to fail than strategists, says a new study from Giga Information Group.

Peter McAteer, an analyst at the Stamford, Conn.-based consultancy, said technologists who fail have much in common:

- They overmanage. "They feel they know all the answers," said McAteer.
- "They are not good at making strategic decisions," he said. "CEOs talking about them say, 'He kept talking technology, not profitability of the business.' "
- They are inflexible. "They are unable to adapt to working for a new boss," he said.
- They don't spend time developing their management skills.

McAteer said strategist CIOs fail for the same reasons that CEOs fail:

- They don't have a broad enough vision of their business.
- They get bogged down in technical issues.
- They're arrogant. "You see this a lot in external consultants," said McAteer. It's somewhat a matter of perception, he added. "If you're successful enough, it's seen as self-confidence."

– *Sami Lais*

Correction

Transportation exchange Celarix Inc. in Cambridge, Mass., allows customers to communicate with one another any way they choose, including via the Internet, and not just by telephone, as reported in "Freight Logistics Company Takes IM Route" [News, Aug. 7].

Wachovia to Cut 100 IT Jobs, 1,800 Total

Bank will reinvest savings from layoffs

BY MARIA TROMBLY

Wachovia Corp. announced plans to eliminate 1,800 jobs last week, including 100 information technology positions, in a bid to save $100 million in annual expenses.

But Jean Davis, senior executive vice president for operations at the Winston-Salem, N.C.-based bank, said that overall, the company won't be decreasing the total number of people working in IT. "We're refocusing," she explained.

That's because the savings gained from the layoffs will be reinvested in other areas, including asset and wealth management, corporate services and retail banking — which may lead to the creation of new IT jobs.

Beefing Up Net Initiatives

"The Internet side of all of these is absolutely an area that we will be beefing up," said Davis.

She said displaced IT employees will have first dibs on other IT jobs in the company, which has 21,300 employees.

While Wachovia wouldn't disclose its total IT spending, Davis said that the Internet initiative is the company's largest technology project, and spending in this area has been increasing each year.

Wachovia is a financial holding company with dual headquarters in Atlanta and Winston-Salem.

Wachovia Bank, NA, the principal subsidiary, has nearly 700 offices in Florida, Georgia, North Carolina, South Carolina and Virginia. ▶

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Latest Microsoft Office Suite Sparks Modest User Interest

But new suite won't run on Windows 95

BY DOMINIQUE DECKMYN

THE NEXT version of Microsoft Corp.'s Office suite will leave millions of Windows users behind when it arrives next year, because it won't be able to run on Windows 95. Some 65 million copies of that operating system may still be in use then, according to one estimate.

However, corporate users and analysts last week seemed less worried about that incompatibility than about the prospect of upgrading from Office 2000 so soon. They also praised the fact that the new suite — called Office 10 — will keep file compatibility for all applications. Office 10 will offer expanded XML support, built-in speech recognition, some user-interface enhancements and new Web-based group collaboration features.

Rick Nolle, vice president of systems at Reinsurance Group of America Inc. in Chesterfield, Mo., said he's unimpressed with the features list. "We'll have to balance the urge to jump forward with the financial considerations of another upgrade so soon [after Office 2000]," said Nolle.

Jim Prevo, vice president and CIO at Green Mountain Coffee Inc. in Waterbury, Vt., said his company experienced file compatibility problems when it continued to use Office 95 after Microsoft changed the file formats in Office 97. Green Mountain has since decided to roll out Office 2000.

"Our main reason to upgrade to Office 2000 was file compatibility. We really didn't use a lot of the new features," said Prevo. He added that if Office 10 supports the same file formats as Office 2000, he won't do a wholesale upgrade of his company's desktops but will instead let the new suite enter on new machines in a rolling upgrade.

While Office 10 won't break file compatibility, it may cause other compatibility problems. To improve the installation procedure, Microsoft won't offer support for Windows 95. By the time Office 10 ships in the first half of next year, the "vast majority" of users will be on Windows 98, Windows NT 4.0 or later operating systems, a Microsoft spokesman said.

But, analysts said, a huge number of Windows users will be left out in the cold. "There will be a lot of Windows 95 still around in 2001," said Al Gillen, an analyst at International Data Corp. in Framingham, Mass. But, he said, companies that are still on Windows 95 are likely to stick with older versions of Office, too.

Not Rushing to Upgrade

Despite their doubts about whether Office 10 will be worth the upgrade, few users are considering a switching to alternative products.

"The various [Office] applications integrate well. Our users are trained and comfortable with those tools," said Buddy Fiume, vice president of enterprise technology at Nabisco Holdings Corp. in Parsippany, N.J. "They work well, and I see no reason to consider alternative products at this time."

Microsoft competitors Corel Corp. and Lotus Development Corp. "are not exactly burning down the road," said Chris Le Tocq, an analyst at Gartner Group Inc. in Stamford, Conn. But new players are offering free productivity suites with support for Office file formats, and some users said they might consider them if Microsoft's pricing for Office 10 is too high.

Microsoft hasn't yet revealed pricing for the suite.

Nolle said he has assigned a review of the effects of a potential upgrade. As a result, he added, he may soon advise his users to run Sun Microsystems Inc.'s StarOffice at home to save money. "Microsoft requires purchasing a separate license for each PC," said Nolle. "If a user does 95% of his word processing at work, maybe StarOffice makes sense for home. It's free and file-compatible."

What's New In Office 10

Some key features of Microsoft Office 10:

- XML support added for **Excel and Access** (as well as Word)
- **Speech recognition** built in
- **Smart tags** automatically link related pieces of information, such as a company name and a stock quote
- Improved **document recovery**
- Team workspaces and other **Web collaboration features**
- Security improvements, including a **central security panel** and the option to not install Visual Basic for Applications support
- Same file formats as in **Office 2000**

What's Next? Office .Net

While Office 10 includes several new features that are related to Microsoft's .Net strategy, such as support for speech recognition and XML, the company has already started to discuss a successor to the product, called Office .Net, slated for 2002 or later.

In line with Microsoft's .Net design, Office .Net will consist of smart clients that consume Internet-based "services." A key feature will be the Universal Canvas – a workspace that combines communication, browsing and document authoring.

Sun Microsystems is working on a similar, server-based version of its StarOffice suite, called StarPortal.

Users have expressed skepticism. Michael Brown, director of technology at Yellow Transportation LLC in Denver, said he sees little benefit. "Unless bandwidth is suddenly no longer an issue, I'd be very concerned about running a server-based suite," he said.

Tim Talbot, vice president of information technology services at PHH Vehicle Management Services LLC in Hunt Valley, Md., said tools like Novell Inc.'s NDS and ZENworks already allow him to roll out a new Office version to desktops in less than a day, so a server-based solution would offer little additional benefit.

One user said he believes the approach has merit. "It would be very useful not to have to deploy [office productivity] software on every desktop," said Jim Prevo, vice president and CIO at Green Mountain Coffee Roasters.

– *Dominique Deckmyn*

Printer Maker's Bankruptcy Causing Parts Shortage

BY TODD R. WEISS

A bankruptcy filing in March by former printer manufacturer Genicom Corp. is still having a ripple effect on some users and resellers that are having trouble finding parts and supplies for prioters sold under the Compaq Computer Corp. and Genicom brand names.

Chantilly, Va.-based Genicom filed for Chapter 11 protection Marcb 10. That continues to cause major headaches for users such as Kurt Huddleston, MIS manager at The Inland Group Inc., a property management business in Oak Brook, Ill.

Hoddleston last week said he has been having problems getting a new printing drum for an eight-month-old Compaq-branded laser printer that was made by Genicom and is still under warranty. He was also unable to get toner and developer solutions for a different Compaq-branded model made by Genicom, a situation that eventually forced him to resort to using substitute products from Hewlett-Packard Co.

"We've been calling Genicom [about getting a new printing drum], and they can't provide the part," Huddlestoo said. "They just say they don't have any and they don't anticipate getting any in." Huddleston added that he also tried pursuing the matter with Compaq's field service organizatioo but was unsuccessful in finding the needed part.

Last month, Genicom's printer unit was sold to Genicom Acquisition LLC, a newly created affiliate of Sun Capital Partners in Boca Raton, Fla. Richard Marks, senior vice president for product and business development at Genicom, said the company is aware of users' concerns and is turning itself around following the bankruptcy and sale.

"We're working very closely with Compaq to take care of their customer base," Marks said. Neither company will walk away from serving those osers, he added,

Randy Schatz, a Genicom sales vice president, said the situation should be drastically improved by the end of next month.

Two resellers that deal with Genicom confirmed that parts availability has been difficult since March.

"Everyone is having problems," said Kirt Southerland, a spokesman for Vital Analysis Consulting Services Inc. in Shorewood, Ill. "Nobody can get these parts right now." He added that Genicom's bankruptcy is also affecting shipments of parts for the printer business of the former Digital Equipment Corp., which Genicom bought three years ago.

Les Brown, printer division sales manager at American Computer Hardware Corp. in Santa Ana, Calif., said the parts shortage has been frustrating for his customers. "The whole Genicom marketplace is in disarray," he said.

Officials at Compaq weren't available for comment on the Genicom situation at press time.

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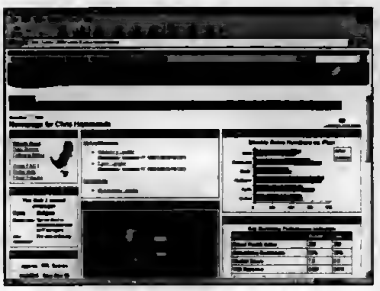

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BRIEFS

Microsoft Adds Cookie Features to IE 5.5

Microsoft Corp. last week said it's ready to ship a promised set of cookie-management features for Internet Explorer 5.5 that give users of the Web browser the option of deleting the files as an added form of privacy. The new cookie controls were released to about 2,000 users for beta-testing in July. The controls are available for download from Microsoft's Web site.

California Eyes Net Tax

The California Senate last week passed a bill that, if approved by the state assembly and signed by the governor, would require all California-based companies to charge a sales tax on Internet purchases. Aimed at the ambiguous area of e-commerce taxation, the bill targets firms that have an online presence. Although there has been widespread debate about how to apply sales taxes to online purchases, no other state has passed such legislation.

NTT Completes $5.5B Acquisition of Verio

Capping a tender offer that has lasted four months and been scrutinized by the U.S. government because of national security concerns, Japan's NTT Communications Corp. announced that it has completed its acquisition of Englewood, Colo.-based Internet backbone operator and Web-hosting provider Verio Inc.

Californian Arrested For Emulex Hoax

Federal authorities last week arrested a California man suspected of creating a hoax press release about Costa Mesa, Calif.-based Emulex Corp. The release was distributed through Internet Wire and sent shares of Emulex stock down more than 60%. Officials arrested Mark Jakob, 28, a former Internet Wire employee, who allegedly posted the release and made nearly $250,000 by selling the stock short. Emulex shareholders have filed a class-action suit against Internet Wire and Bloomberg LP, which wrote stories based on the information.

Outsourcing Web-Based E-Mail Gains Steam

Circuit City, others cite savings, simplicity

BY JENNIFER DISABATINO

Circuit City Stores Inc. last week said it has signed a deal to outsource its e-mail requirements for the Web-based training of 60,000 sales associates at its 600-plus stores.

The deal between the electronics retailer and San Francisco-based outsourcer Critical Path Inc. is by far the largest e-mail outsourcing deal implemented to date, said Dave Nelson, a senior industry analyst at Giga Information Group Inc. in Cambridge, Mass. But Circuit City is by no means alone.

Increasing numbers of large corporations are turning to outsourced, Web-based e-mail to get new groups within the companies online quickly and cheaply, or to communicate with partners.

Insurance firm AFLAC Inc. in Columbus, Ga., for example, signed an agreement last week with WorldCom Inc. in Clinton, Miss. Under the deal, WorldCom, acting as a reseller for Critical Path, will host Web-based e-mail for more than 28,000 independent agents.

In the case of Richmond, Va.-based Circuit City, the retailer will keep its internal e-mail on Lotus Notes software, said CIO Dennis Bowman.

The ability to use Notes offline is "a huge advantage for our mobile sales force," Bowman said, but he added that the Lotus software is "too robust" for Circuit City's training program.

When the firm sourced an e-mail system for the program, it "almost staked out a position that was at the other extreme from Notes," Bowman said. He noted that the training program doesn't require add-ons like calendars and knowledge management tools that are incorporated in Notes and Microsoft Corp.'s Exchange.

Cost was another factor, he said — and for good reason. According to a recent study conducted by The Radicati Group Inc. in Palo Alto, Calif., Exchange costs $30 to $40 per user for Fortune 500 companies that install it in-house. Using Exchange through an application service provider (ASP) drops the cost to $20 per user, said Radicati President and CEO Sara Radicati.

ASP services "usually provide access to a great deal more applications and functionality than just a Web client," she noted. Web e-mail only costs around $5 per user, but the service it provides is very basic.

In late July, Bank One Corp. in Chicago contracted with MessageReach, a subsidiary of Xpedite in Eatontown, N.J., to handle Bank One's outgoing business account information via e-mail.

For Bank One, the savings gained through outsourcing e-mail stem from the fact that it only has to pay for what it uses on MessageReach servers rather than having to buy and install the equipment internally. "It really wasn't economical for us to make that kind of investment," said Len Goodman, first vice president at Bank One, adding that the system can scale up as needed.

"E-mail outsourcers have begun to prove themselves," said Nelson. "With major upgrades coming along like Exchange 2000, [firms are] looking at outsourcing instead of updating."

Price Is Right

Why outsource your e-mail?

- It's cheap: It's about one-quarter the cost of keeping it in-house.
- It's fast: Rollout takes about a month.
- It's easy: Your ASP handles the upgrades.

WHO'S DOING IT?

- Circuit City Stores Inc.
- AFLAC Inc.
- Bechtel Enterprises Holdings Inc.
- Bank One Corp.
- United Air Lines Inc.
- McDonald's Corp.

Other big corporations that have outsourced some e-mail requirements in the past year include United Air Lines Inc., working with USA.net Inc., and McDonald's Corp., whose partner is United Messaging Inc.

Medical Records Outsourced in $15M Deal

UCLA hopes all files can go electronic

BY JULEKHA DASH

The University of California at Los Angeles (UCLA) Medical Center has signed a novel three-year, $15 million agreement with Irvine, Calif.-based Certus Corp. to manage its medical records operations.

Although health care organizations have been outsourcing portions of their medical record keeping for years, UCLA's decision to outsource all of its records operations is somewhat unique, said Simmi Singh, a vice president of the health care division at Edison, N.J.-based Internet services firm SeraNova Inc.

In fact, Singh said, UCLA's move may become a trend as the task of managing health information becomes more complex under the Health Insurance Portability and Privacy Act. The act mandates that health care organizations protect the privacy and security of patient information.

Under the deal, which was announced last week, Certus will manage medical records operations at several UCLA facilities, including the Santa Monica Medical Center and its outpatient clinics. Though Certus has already begun maintaining UCLA's medical records, the medical facilities won't completely transfer all of the approximately 100 employees in the medical records division to Certus until next summer.

- $15 million over three years
- About 100 employees will be transferred to Certus
- Contract includes goal of capturing all patient information online

One of UCLA's goals is to put all of its medical information online, said Dr. Mike McCoy, CIO at UCLA. While the majority of its 3 million patient charts are stored online, about 20% of the patient information, such as doctors' handwritten notes, are still in paper format.

UCLA said it also hopes Certus can transform its records operations to support online processes so charts, for example, can be delivered electronically rather than in paper format.

"Now, we literally have 100 people filing papers and wheeling charts around clinics," said McCoy, who added that the decision to outsource wasn't driven by cost.

Information technology outsourcing in health care is on the rise. Currently, 45% of all integrated delivery networks (IDN) are outsourcing at least one IT function, such as data center or desktop support. That percentage is expected to almost double by 2004, said analyst Matt Duncan at Gartner Group Inc. in Stamford, Conn.

One reason health care executives are turning to outsourcing is the complexity of the IT environment among industry players, said Duncan. A typical IDN may have more than 100 applications that aren't integrated, he said.

In addition, Duncan said, health care organizations are having difficulty competing with the private sector for IT skills because providers don't "want to disrupt the salary structure" by paying a programmer twice as much as a nurse.

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TV Tower Fire Sparks Net Use in Russia

BY MARIA TROMBLY

When a broadcast tower fire threw several Moscow TV stations off the air last week, many would-be TV viewers turned to the Internet. In some cases, traffic to news sites doubled from usual levels.

The sites reported few performance problems as a result, though one, Gazeta.ru, had to add a second server to handle the traffic, said Editor in Chief Vladislav Borodulin. Last Monday, 85,000 users visited the Gazeta.ru site. This was more than double the typical 40,000 daily average.

But Borodulin said he wasn't sure that the increase was because people couldn't watch television or simply because they were hungry for news. Site visits had also spiked during the Kursk submarine crisis the previous week.

Turning to the Web first for information about major news events is becoming more common in Russia, according to Tom Adshead, an analyst at Troika Dialog, a Moscow-based bank. "I think there's a sense that the Internet news providers give more immediate coverage," he said.

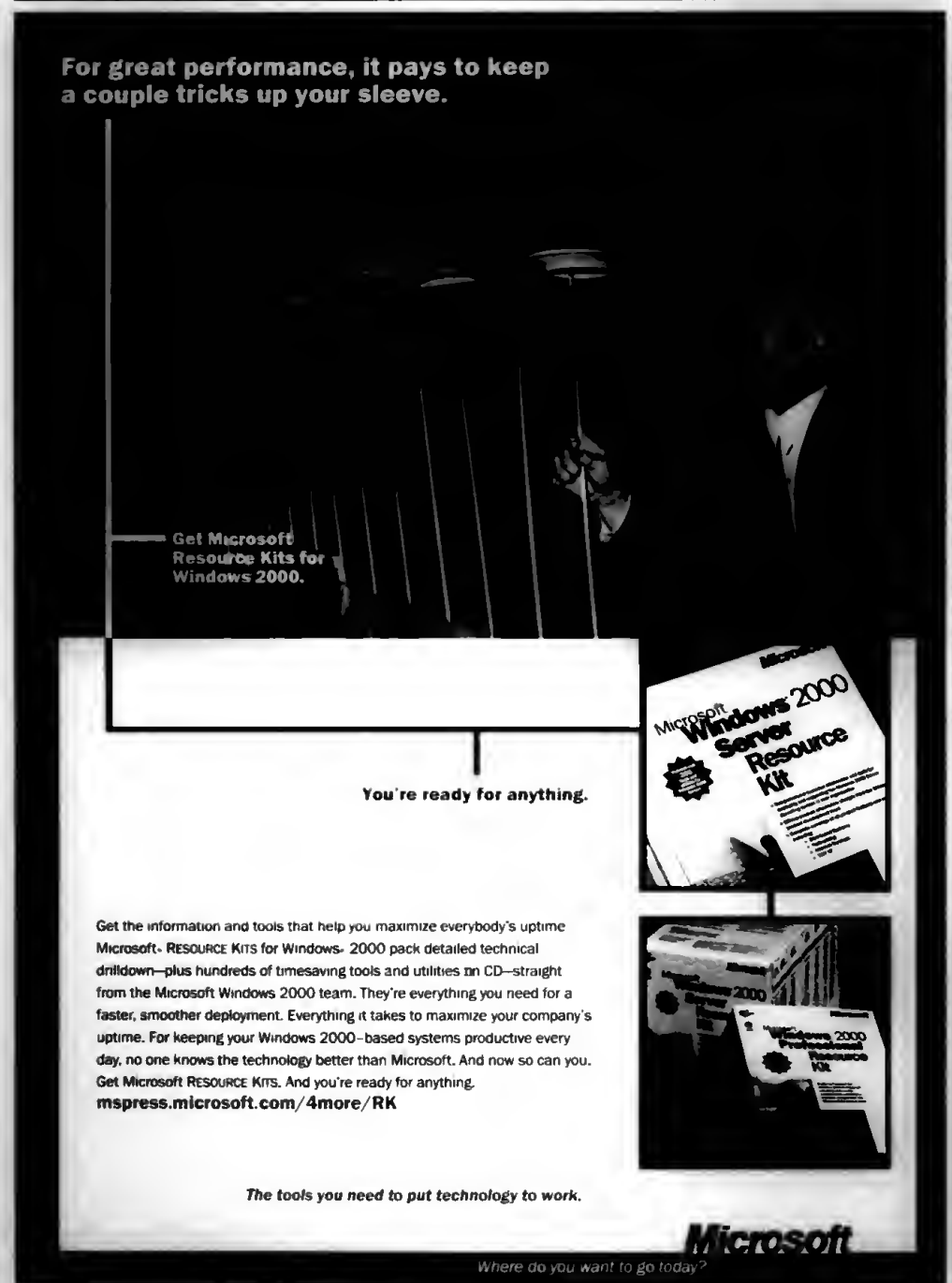
Either way, said Borodulin, spikes increase the total number of regular visitors. "Each such crisis adds new permanent readers," he said. "There's a spike for a day or two, and then the audience stabilizes again but on a higher level — usually around 10% higher. It shows readers that the Internet is a reliable and high-quality method of communication."

According to Russian media reports, state-owned ORT and RTR, as well as independent TV channel NTV, all went off the air Monday night in the Moscow area. They started to return Wednesday night.

NTV's Web site saw a three-fold increase in traffic the day the network went off the air. Visits increased from a typical 10,000 to a high of 30,000 during the crisis.

But NTV webmaster Olga Melnikova said she wasn't sure how much of the increase to attribute to the outage. "We have a new site and a new design, and people could be coming because it's been advertised on TV," she said.

One-third to one-half of Russia's estimated 2 million regular Internet users live in Moscow, said Adshead.



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Congress Pressured to Raise H-1B Visa Cap

Short pre-election session this week also puts information security high on agenda

BY PATRICK THIBODEAU

CONGRESS returns this week for a fast and furious pre-election session under big pressure from high-tech groups to raise the H-1B visa cap.

All of the 115,000 H-1B visas allotted for fiscal 2000 were issued by March, and all of the visas allotted for the coming fiscal year, which begins Oct. 1, will likely run out by early next year unless Congress raises the cap beyond its new reduced limit of 107,500 visas. The visas allow skilled foreign workers to take jobs in the U.S. for up to six years.

"It's absolutely essential that this get done now, and the sooner the better," said Lowell Sachs, manager of federal government affairs at Sun Microsystems Inc. "It's not a question of, 'Gee, it would be great if they could do this.' They have got to get this done."

Observers note that uncertainty about the likelihood of an agreement to raise the cap prevails, especially since this is an election year. Congress is set to recess for the year early next month.

Sun has about 3,500 employment openings, about half of which are information technology-related positions, said Sachs, and the firm has plans to increase its hiring next year.

Another firm that wants the cap raised is TRW Inc., an automotive supplier in Cleveland. TRW has about 1,200 vacancies, about half of them in engineering, said Kathy Ott, a lobbyist for TRW. It has also started a program under which it will pay for education costs of employees seeking advanced degrees, as well as provide stipends and health insurance. "We're still trying to re-educate our own workforce, but that is going to take a few years to bear fruit," said Ott.

Legislation that would hike the cap to 200,000 visas has been held up over other unrelated immigration issues that have been attached to it.

Information security will also get attention when lawmakers return. The congressional committee that released letter grades on the year 2000 compliance of federal agencies now intends to issue similar grades on the information security readiness of 54 federal agencies and departments.

The U.S. House Subcommittee on Government Management, Information and Technology, led by Rep. Stephen Horn (R-Calif.), plans to release its security report cards at a Sept. 11 hearing. Roger Baker, CIO at the U.S. Department of Commerce, said the effort may produce results. "The very senior management did not like seeing themselves as not doing well and [having to] focus on it more," he said. "A key to getting these things done is having that senior management focus."

But Mark Gembecki, president of information security firm WarRoom Research Inc. in Linthicum, Md., said the committee's effort has limits.

"From an embarrassment standpoint, it will probably be very effective," he said. "But [Horn and other subcommittee members] are sending a terribly misconfigured message: That they would rather police than create awareness."

Session Wish List

Congress is due to wrap up for the year early next month. High-tech groups would like lawmakers to address several issues when Congress returns for a short session this week:

Unless Congress raises the 107,500-visa cap that will take effect next month, the quota may be reached by early next year.

The House approved normal trade relations in May. The Senate is on deck.

A push will be made to extend the Internet tax moratorium, which prohibits new Internet taxes. It expires in October next year. High-tech groups would also like to see the research and development tax credit made permanent.

UCITA: A Work In Progress

Virginia and Maryland, the two states that have moved the fastest to adopt UCITA, have also left the door open to changing it.

Although the law will take effect in Maryland Oct. 1, the state has formed a working group to study UCITA's implementation, and the group may recommend amendments. Maryland formed the group, in part, to respond to the concerns of critics that the legislation is flawed.

Virginia, the first state to adopt UCITA, has delayed its implementation until July of next year, pending a study by the state's legislative Joint Commission on Technology and Science.

John Rudin, who represents the Virginia Manufacturers Association in the UCITA study group, wants to limit the "self-help" provisions, which would allow vendors to remotely shut down a system during a contract dispute, requiring court intervention before a firm can take action.

"I think if we can get the right protections in there, then we can at least water down the risk of a self-help mechanism," he said.

– *Patrick Thibodeau*

Maryland's UCITA May Have National Reach

Vendor contracts may cite state's law

BY PATRICK THIBODEAU

In less than a month, the controversial software licensing measure UCITA will become law for the first time, in Maryland. And it's an event with potential national implications for all end-user companies.

Peoria, Ill., where Caterpillar Inc. is based, is a long way from Maryland, but Gordon Pence, an intellectual property counsel at the company, is getting ready to provide his information system managers with some new rules about software licensing.

"The first advice I'm going to have to give them is they no longer accept [boilerplate] 'shrink-wrap' or 'click-wrap' agreements without [those agreements] being reviewed" by legal staff, said Pence.

After Oct. 1, when Maryland's law takes effect, if information managers aren't paying attention to the fine print when they buy shrink-wrapped software or click "I accept" for online agreements, they may be committing their companies to contract terms based on Maryland's version of the Uniform Computer Information Transaction Act (UCITA).

Despite that potential, legal experts aren't expecting licensers, in landgrab style, to begin citing Maryland law in their contracts. UCITA is still very new, complex and legally unsettled. Years of court challenges doubtlessly lie ahead.

STEPHANIE REEL: Supports limits on software disabling

But vendors can still cite Maryland law as their "choice of law" in a licensing contract, no matter where the vendor and licensee are located, said Jean Braucher, a University of Arizona law professor in Tucson and critic of the measure. "The key point is, you don't need any connection with Maryland, at least under UCITA," she said.

One exception may be Iowa, which recently passed legislation to protect in-state firms and residents from UCITA.

UCITA, which the Chicago-based National Conference of Commissioners on Uniform State Laws sent to legislatures of all U.S. states and territories for consideration last year, is intended to bring a consistent set of rules to licensing agreements. Critics — including many corporate information technology managers — say the law would give vendors too much control, such as the ability to limit their own liability or remotely turn off an end user's system in a contract dispute.

Stephanie Reel, CIO at Johns Hopkins University in Baltimore, said her main concern with UCITA "is the ability of software vendors to reach in and disable software that they believe is inappropriately being managed or licensed."

But some businesses are welcoming UCITA. The Nasdaq Stock Market Inc. is considering citing the Maryland law in its online contracts. The Washington-based stock market has a major computer operation in Maryland.

UCITA "gives me rules beyond anything that exist right now," said Joel R. Wolfson, Nasdaq's vice president and general counsel. UCITA will bring certainty to Nasdaq's online contracting by providing a clear set of guidelines, such as when to require a double click on an online contract and what terms to make conspicuous.

Proponents say UCITA lets end users and vendors agree to any contract terms they want.

But large vendors "will be able to flex their muscles, and you'll have to cave on some of these issues," said Scott Johnson, an attorney at Crews and Hancock P.L.C. in Richmond, Va.

Only Virginia and Maryland have adopted UCITA so far. Virginia has delayed implementation until next July.

Meanwhile, end users wonder just what UCITA will bring. Don Riley, CIO at the University of Maryland in College Park, said he believes that Maryland will be responsive to any problems raised by UCITA. "I don't think any state wants to be on record as having done something that clearly disadvantages the citizens," he said.

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GM Shuts Doors on GMDriverSite.com

Company blames restrictive legislation

BY LEE COPELAND

GENERAL MOTORS Corp. plans to quietly pull the plug on its GM DriverSite brick-and-click used-vehicle store, which the automaker launched in Texas last year.

After losing a protracted legal battle to operate a Web-based used-car business in Texas in July last year, Detroit-based GM licensed the rights to the online store and the Web front end to a local dealer in Houston. GM now plans to shut the Web site down, close the retail store and lay off the store's five employees.

Officials at the world's largest automaker said that the electronic store pilot offered valuable experience in how to operate a dot-com business but that restrictive laws prohibiting online vehicle sales by automakers accelerated the store's closing.

"The laws just aren't conducive to e-stores right now in Texas," said Roy Pikus, GM's brand director for Certified Used Vehicles. "We've learned all that we need to know about an e-store after one year of operation."

GM isn't the only automaker that has recently gone to court in Texas. In late July, Ford Motor Co. lost a legal fight to sell cars online to consumers in Texas. The U.S. District Court upheld a law barring automakers from selling vehicles "by mail, phone calls, leafleting, skywriting or drum signals."

Pikus said that ruling "hastened [GM's] departure out of Texas." But he added that GM "had not lost confidence in the concept" of an e-store.

The online store had both a Web front end at *www.gmdriversite.com* and a physical 4,000-square-foot shop in a local Houston strip mall. Consumers could search through an inventory of about 300 used vehicles and then schedule appointments to test-drive a vehicle at the mall. Sales averaged 30 vehicles per month.

GM had planned to operate the GMDriverSite store itself. But the automaker was denied a license to do that by the state of Texas. George DeMontrond, who owns several dealerships in Houston, then purchased and operated the store in conjunction with GM. DeMontrond couldn't be reached for comment.

GM has run into dead ends before when it has tried to circumvent dealers. Last summer, GM launched a poorly received plan to buy 770 dealerships and compete with its dealers in most U.S. markets.

Thilo Koslowski, an automotive analyst at Gartner Group Inc. in Stamford, Conn., said the loss of automaker-endorsed used-vehicle outlets such as GMDriverSite will ultimately hurt consumers.

"It saves time to give consumers access to huge inventories online," said Koslowski. "They don't have to go and physically visit each dealer."

AT A GLANCE

Dead End

Highlights of the short-lived used-vehicle brick-and-click:

- Physical e-store (with Web site at *www.gmdriversite*) commanded 4,000 square feet of retail space
- It sold an average of 30 used vehicles per month
- It had an inventory of more than 300 off-lease late-model vehicles
- It was licensed by local GM dealer George DeMontrond
- It opened for business last October

Ford, Dealers Launch Online Pricing, Purchasing Venture

Hope to tackle haggling problem

BY LEE COPELAND

Following the lead of rival General Motors Corp., Ford Motor Co. last week unveiled a copycat dot-com venture with its dealers to offer vehicle pricing and purchasing online.

Ford, the world's No. 2 automaker, and its dealers hope to curtail the growing popularity of online vehicle brokers, such as Autobytel.com Inc., which often offer more competitive pricing than dealers. Analysts said the dot-com pushes by GM and Ford reflect the growing importance of the Web as a purchasing option for car shoppers.

"In the past, the major issue has been the battleground between dealers and the automakers about Internet sales," said Chris Houseman, an analyst at The Automotive Consulting Group Inc. in Ann Arbor, Mich. But dealers and automakers are burying the hatchet, he said, in order to retain good relations with consumers, who are increasingly turning to Internet middlemen like Autobytel to avoid haggling with dealers.

Through a new Web site called FordDirect.com, the automaker and its dealers aim to tackle the pricing problem by offering car shoppers an "e-price" on vehicles. The e-price is aimed at eliminating haggling and will vary based on vehicle pricing in regional markets. Ford officials estimate that the e-price will fall somewhere between the manufacturer's suggested retail price (MSRP) and the invoice price.

Before the launch of FordDirect.com, the carmaker had offered MSRP quotes over its Web sites but hadn't offered customers online purchasing capabilities.

Officials at Dearborn, Mich.-based Ford said the company's Ford Division Dealer Council, which represents 4,200 of the automaker's 5,500 dealers, originally broached the dot-com plan late last year. Lincoln-Mercury, Volvo and Jaguar dealers aren't part of the new dot-com initiative.

Trilogy Software Inc. in Austin, Texas, will provide the technology infrastructure for the new site.

Going Direct

Taking aim at online brokers, Ford last week launched a dot-com venture with dealers.

- **New Web site at *www.ford direct.com***
- **First pilot set to launch in California next month**
- **Dealers hold 80% voting rights, but the equity stake wasn't disclosed**

Continued from page 1

Supercomputer

house the entire U.S. Library of Congress — was built during the past two years, primarily by an 80-person internal information technology and engineering team headed by Alan Huffman, manager of the $27 billion energy company's Seismic Imaging Technology Center. The Linux-based system cost one-tenth the price of a conventional supercomputer.

The system has already been used to analyze seismic data from the North Sea and the Gulf of Mexico, where Conoco recently discovered oil and is drilling two deepwater wells.

Conoco isn't the first oil and gas company to implement its seismic software on Linux, according to Stacey Quandt, an analyst at Cambridge, Mass.-based Giga Information Group Inc. New York-based competitor Amerada Hess Corp. also implemented a Linux-based seismic research system on a 64-computer system from Round Rock, Texas-based Dell Computer Corp.

Still, the Conoco implementation is very significant in that it signals a "continuation of the trend" within the oil and gas industry of companies willing to run mission-critical supercomputing applications on "a commodity operating system," Quandt said.

The new supercomputing system integrates Linux and Intel Corp.'s cluster chip architecture with advanced tape robotics, 10 terabytes of massive hard-disk storage and its own proprietary seismic software.

The new system has been designed so that it's accessible from almost any Conoco substation via a company intranet. This task involved re-engineering Conoco's proprietary seismic software to operate in Linux with an XML-compatible, Java-based user interface.

"We jumped on Linux because it had the flexibility to customize to our needs. The software re-engineering is quite a significant component to switching over [from a conventional supercomputing system]," Huffman said.

"We've also designed the hardware so we can break away a minicluster of 48 or 64 CPUs, so a geophysicist can process data on-site," Huffman added. "If a scientist is sitting in central Asia and has a bunch of tapes to be analyzed, he can bring a minicluster and process it right there."

The tapes that geophysicists analyze contain sound waves recorded in the field and used to build an image of the subsurface of the Earth, similar to the way physicians use ultrasound data to build a physical picture of a body part.

"The bottom line is this: We control costs, we control the data, then we can focus the technical efforts of our geophysical team on developing the best imaging software necessary to make the very best decisions," Huffman said.

Last week, Prudential Securities Inc. in New York issued a report ranking Conoco first in exploration and production results for last year.

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- It was licensed by local GM dealer George DeMontrond
- It opened for business last October

Ford, Dealers Launch Online Pricing, Purchasing Venture

Hope to tackle haggling problem

BY LEE COPELAND

Following the lead of rival General Motors Corp., Ford Motor Co. last week unveiled a copycat dot-com venture with its dealers to offer vehicle pricing and purchasing online.

Ford, the world's No. 2 automaker, and its dealers hope to curtail the growing popularity of online vehicle brokers, such as AutobyteLcom Inc., which often offer more competitive pricing than dealers. Analysts said the dot-com pushes by GM and Ford reflect the growing importance of the Web as a purchasing option for car shoppers.

"In the past, the major issue has been the battleground between dealers and the automakers about Internet sales," said Chris Houseman, an analyst at The Automotive Consulting Group Inc. in Ann Arbor, Mich. But dealers and automakers are burying the hatchet, he said, in order to retain good relations with consumers, who are increasingly turning to Internet middlemen like Autobytel to avoid haggling with dealers.

Through a new Web site called FordDirect.com, the automaker and its dealers aim to tackle the pricing problem by offering car shoppers an "e-price" on vehicles. The e-price is aimed at eliminating haggling and will vary based on vehicle pricing in regional markets. Ford officials estimate that the e-price will fall somewhere between the manufacturer's suggested retail price (MSRP) and the invoice price.

Before the launch of FordDirect.com, the carmaker had offered MSRP quotes over its Web sites but hadn't offered customers online purchasing capabilities.

Officials at Dearborn, Mich.-based Ford said the company's Ford Divisinn Dealer Council, which represents 4,200 of the automaker's 5,500 dealers, originally broached the dot-com plan late last year. Lincoln-Mercury, Volvo and Jaguar dealers aren't part of the new dot-com initiative.

Trilogy Software Inc. in Austin, Texas, will provide the technology infrastructure for the new site.

Continued from page 1

Supercomputer

house the entire U.S. Library of Congress — was built during the past two years, primarily by an 80-person internal information technology and engineering team headed by Alan Huffman, manager of the $27 billion energy company's Seismic Imaging Technology Center. The Linux-based system cost one-tenth the price of a conventional supercomputer.

The system has already been used to analyze seismic data from the North Sea and the Gulf of Mexico, where Conoco recently discovered oil and is drilling two deepwater wells.

Conoco isn't the first oil and gas company to implement its seismic software on Linux, according to Stacey Quandt, an analyst at Cambridge, Mass.-based Giga Information Group Inc. New York-based competitor Amerada Hess Corp. also implemented a Linux-based seismic research system on a 64-computer system from Round Rock, Texas-based Dell Computer Corp.

Still, the Conoco implementation is very significant in that it signals a "continuation of the trend" within the oil and gas industry of companies willing to run mission-critical supercomputing applications on "a commodity operating system," Quandt said.

The new supercomputing system integrates Linux and Intel Corp.'s cluster chip architecture with advanced tape robotics, 10 terabytes of massive hard-disk storage and its own proprietary seismic software.

The new system has been designed so that it's accessible from almost any Conoco substation via a company intranet. This task involved re-engineering Conoco's proprietary seismic software to operate in Linux with an XML-compatible, Java-based user interface.

"We jumped on Linux because it had the flexibility to customize to our needs. The software re-engineering is quite a significant component to switching over [from a conventional supercomputing system]," Huffman said.

"We've also designed the hardware so we can break away a minicluster of 43 or 64 CPUs, so a geophysicist can process data on-site," Huffman added. "If a scientist is sitting in central Asia and has a bunch of tapes to be analyzed, he can bring a minicluster and process it right there."

The tapes that geophysicists analyze contain sound waves recorded in the field and used to build an image of the subsurface of the Earth, similar to the way physicians use ultrasound data to build a physical picture of a body part.

"The bottom line is this: We control costs, we control the data, then we can focus the technical efforts of our geophysical team on developing the best imaging software necessary to make the very best decisions," Huffman said.

Last week, Prudential Securities Inc. in New York issued a report ranking Conoco first in exploration and production results for last year.

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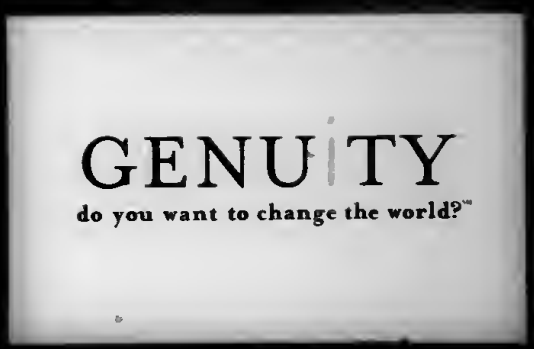

Continued from page 1

Sun Slammed

that don't work and Sun's tendency to initially blame the problem on other factors before acknowledging it — often only under a nondisclosure agreement.

"They treated the whole thing like a cover-up," said one user at a large utility in the Western U.S. who asked not to be named.

Even with hardware replacements, the utility has had so many crashes on its Sun 6500 servers since they were purchased in May that the machines have been pulled out of production, the user said. Now the company is considering returning some of them as defective.

When the utility first informed Sun about the issues, "they told us this was an unusual problem and that others did not have it.... They repeatedly said this," the user said. "Poor handling of this case could cost Sun millions of dollars in sales as well as a high-profile client."

Sun recently acknowledged a problem involving an external memory cache on its UltraSPARC II microprocessor module. Under certain conditions, the problem has been triggering system failures and frequent server reboots at customer locations over the past 18 months.

In a recent interview with *Computerworld* on the subject, Sun Executive Vice President John Shoemaker said a fix — in the form of a mirrored-cache technology — is on the way. "We are close to declaring complete victory over this," he said.

Fix Can't Come Too Soon

That won't come a moment too soon for IQ4hire Inc., a Chicago-based start-up that purchased a Sun Enterprise 420R and a Sun Enterprise 220 server in May. Since then, the 420R has crashed seven times at the dot-com, while the 220R crashed for the first time last week, said CIO Eric Durst.

"Sun came out at least four times on the 420. They talked about the heating, the air conditioning, the static electricity. ... They replaced hardware and generally changed everything but the frame," Durst said. "They didn't appear to know how to fix it."

"I've had cases open on this problem over and over again," said Norman Morrison, an independent project consultant working at a service provider that hosts Web sites for companies that sell retail goods. But, he added, "I've had people at Sun tell me it is a very rare occurrence."

It was only recently that Sun finally told him about the problem and the planned fix. "They said it was necessary to sign an NDA to find out what fixes they had in the works for the cache problem. Neither I nor my company has signed such an agreement," Morrison said.

Ken Dort, an attorney at Gordon & Glickson LLC in Chicago, last week said that such nondisclosure agreements (NDA), though highly unusual, are legally enforceable as long as they aren't signed under duress.

"If there's bad news to be distributed, these NDAs can slow down the propagation of the information and give the [vendor] more time to fix the problem," Dort said.

In cases where users rely heavily on a vendor's product, they are more willing to sign such agreements, he added.

"It's not illegal or even coercive," said Esther Roditti, an independent computer and Internet law specialist in New York. On the other hand, she said, "I've never heard of this happening before."

Many Users Unaffected

Despite the frequency with which the problem appears to hit some Sun users, there are clearly many others who aren't affected by it.

AT A GLANCE

System Failures

What's the issue? A problem involving an external memory cache on Sun's UltraSPARC II microprocessor module has been triggering system failures and frequent server reboots.

What causes the problem? Sun claims that it isn't sure but it points to a number of possible reasons, including defective components and faulty operating conditions.

How long has it been going on? At least 18 months

What's Sun's fix? Replacing CPU modules, working with customers to tweak the operating and environmental conditions under which the systems operate.

Is there a permanent fix? Sun says it's working on a mirrored-cache technology that should become available by year's end.

"We have seen zero problems of this nature on our machines," said Scott Medlock, chief operating officer at Commercial Open Systems Inc., an Internet service provider in Kansas City, Mo.

The company runs a variety of Sun servers and has seen no evidence of a memory glitch, despite running the servers "at 70% capacity 100% of the time" during the past three years, Medlock said.

DiCarta Inc., an online contract management service, has also had no problems related to the memory issue, said CEO Scott Martin. The Redwood City, Calif.-based company is a member of a Sun program aimed at improving overall service delivery of Internet service providers.

"There's never been an issue with any of the Sun equipment with regard to any hardware failures," Martin said. "And that includes everything from the smallest servers all the way to their biggest one."

Continued from page 1

Exchanges

materials from prequalified suppliers it has brought together over a private digital exchange built with software from Commerx in Chicago.

"I'm clearly on the side of paring down and creating better relationships with my existing suppliers, because it's by integrating with your suppliers and sharing forecasts that you can get the economies everyone is talking about," said Mike MacKenty, director of information technology at the Clinton, Mass.-based manufacturer. "I think that's where the movement will be long term."

So does Gartner Group Inc. in Stamford, Conn., which estimates that some 30,000 private exchanges are in various stages of development, compared with some 600 public exchanges now in operation.

Public exchanges, however, won't disappear altogether, experts say. Instead, they will likely be tapped by users for spot buys and commodity purchases.

But not all of them, according to Tom Koulopoulos, an analyst at The Delphi Group in Boston. "Right now, B2B is an incredibly convoluted marketplace," he said at Delphi's business-to-business executive summit last week. "One-half of the B2B exchanges out there will go under in six months."

Meanwhile, eMarketer Inc., a New York-based Internet research firm, reports that 93% of all business-to-business commerce is currently transacted through private or so-called proprietary exchanges, many of which have generated huge and well-documented supply-chain efficiencies.

> Right now, B2B is an incredibly convoluted marketplace. One-half of the B2B exchanges out there will go under in six months.
>
> TOM KOULOPOULOS, ANALYST, THE DELPHI GROUP

Think Bentonville, Ark.-based Wal-Mart Stores Inc. and Round Rock, Texas-based Dell Computer Corp.

Even some public business-to-business marketplaces are embedding private exchanges within their Web sites.

GoFish.com Inc., a seafood exchange based in Portland, Maine, has what it calls a pipeline feature. The feature lets big corporate buyers like the Pleasanton, Calif.-based Safeway Inc. grocery chain do business privately on the site with preferred suppliers.

"Safeway doesn't wake up wondering where they'll buy shrimp," said GoFish CEO Neal Workman. "What our model starts to morph into is what their business relationships already look like."

Several managers at last week's executive summit said they agreed that what's driving the explosion in proprietary exchanges is companies' long-standing preference to do business with tried-and-true suppliers.

Public exchanges, they said, may be a good place to make spot purchases or to buy commodity items, like paper or janitorial services, on the cheap. But commodity items aren't what most companies are looking for to keep their production lines rolling.

J. Tyler Welch, a materials director at Northrup Grumman Corp. in El Segundo, Calif., estimates that less than 10% of the direct goods the airplane manufacturer buys are so-called standard items.

"There are very rigid specifications and huge liabilities associated with aircraft parts," Welch said. "You can't afford to have Radio Shack parts you bought online show up in an airplane."

Still other companies, such as Anheuser-Busch Cos., have strict specifications on even their indirect goods. For instance, Anheuser-Busch buys palettes, which must be of a certain size and contain a certain number of screws, from prequalified vendors.

"We have unique packaging requirements, so why would we want to put them on a [public] exchange when we've already [got] qualified suppliers?" said Jennifer Coop, director of e-commerce at the St. Louis-based beer maker.

Wary of Consortia

For now, Welch said he's equally leery of doing business on any of the aircraft industry consortia exchanges. He said Northrup Grumman has looked into MyAircraft.com and another exchange announced by The Boeing Co. in Seattle.

"But there are costs, such as transaction costs, involved in participating," Welch said. After poking into these things at Northrup Grumman, "we're not finding a lot of substance, at least in our industry."

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Windows 2000

What is Windows 2000 Advantage?

Windows 2000 Advantage is the partnership among Microsoft, Compaq and Computerworld Enterprise Business Solutions to inform IT leaders about Windows NT and Windows 2000 technology by providing timely, useful information — in print and online — for planning and deploying Windows NT and Windows 2000 with Compaq services and solutions.

Online This Week

Microsoft Ships Windows 2000 Datacenter Server to Program Partners

Microsoft announced the release to manufacturing of the Microsoft Windows 2000 Datacenter Server, completing the product family for the Windows 2000 operating system.

The Inside Story on Windows 2000

The Ultimate Windows 2000 System Administrator's Guide is appropriately named. It is the definitive reference for administrators and IT managers charged with Windows 2000 deployment and management. However, this book is also recommended to a much wider audience. Anyone needing to understand how to use Windows 2000 basic and advanced features will find this a valuable resource.

Making Administrative Life Easier: Win2K Resource Kits

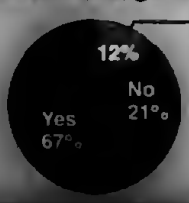
Microsoft has made available two sets of resources that are indispensable to Windows 2000 administrators. First, the Resource Kit Support Tools comes bundled with the standard distribution of Windows 2000 Server versions. Second, the supplemental set of manuals and utilities marketed as the Windows 2000 Server Resource Kit is sold separately, but is well worth the investment.

Quick Poll

Are you more likely to migrate to Windows 2000 now that Service Pack 1 (SP1) has been released?

Cast your vote now at www.Windows2000Advantage.com.

Check out the current results:
Base: 144 ▶



Microsoft

Robin Hensley leads Compaq's Datacenter Program

As director, Industry Standard Servers at Compaq, Robin Hansley is leading a team charged with developing Compaq's Datacenter program, which was created to ensure that when Microsoft releases Datacenter Server late this summer, Compaq servers will be optimized to run on it. The Datacenter program has involved the kind of close collaboration between Compaq and Microsoft that has marked their relationship since the earliest days of Windows NT. Windows 2000 Advantage news editor, Bruce Hoard, recently interviewed Hansley in Houston.

Q: What is the focus of Compaq's Datacenter program?

Hensley: The Datacenter program is moving industry standard products — in our case ProLiant and StorageWorks — into the data center space. Last year, Compaq and Microsoft proved that these products could scale, and that they belong in data centers. People are running business-critical applications on these products

Q: Describe the testing process.

Hensley: Initially, we tested Compaq 8-way servers and Windows NT 4.0 Enterprise Edition, and then we moved onto Windows 2000 and ProLiant 32-ways servers, which will debut later this year. Given that we've proved the scalability of the products, what we needed in the Datacenter space was a higher level of reliability and business processes built around change management and service. Today, IT shops have a lot of integrators who are pulling together all of the different industry standard components, including the operating system, hardware, applications and tools. They are testing to make sure these components work in their environments. Then, they are deploying, but it doesn't end there because they have to keep up with all of the changes and upgrades.

Q: So how is Compaq helping?

Hensley: Compaq is taking the customer out of the integration process. We are doing the integration for them. Specifically, we are supporting very specific SKUs or models. We are targeting very specific products and in our case, we are doing the ProLiant 8500 700-MHz model, and the ProLiant 32-way server. We are also providing very specific storage options for StorageWorks that will go along with these products. And then, we are pulling together a great change management program with which we will be updating the systems once every six months.

Q: Regarding the 32-way servers, how are you preparing for their introduction?

Hensley: We did the first demonstration in early August at the Technical Reviewers Workshop in Redmond, Wash. Also, we have beta users lined up right now and we will be installing ProLiant 32-way servers in competency centers shortly to allow customers to test their applications for scalability.

For the full text, visit www.Windows2000Advantage.com.

ADVANTAGE

The Web Magazine for IT Leaders Implementing Windows NT and Windows 2000 with Compaq Services and Solutions

▶ **Story**

Upgraded SQL Server 2000 facilitates Web-based applications, offers increased reliability

By David Strom

With the upcoming release of SQL Server 2000, Microsoft has an opportunity to play in the major leagues when it comes to enterprise-grade database servers. The new version — scheduled to ship this fall — has improvements in four areas. Web applications, reliability, scalability and data analysis. The most noticeable changes deal with how Web-based applications are constructed with SQL 2000.

"We designed SQL 2000 to be accessible to both database and Web developers by being able to get Web-based data into and out of SQL tables. We added XML keywords to our SQL language and also parse and store XML documents in the tables," says Jeff Ressler, the lead project manager from Microsoft.

It marries the best of both worlds: having a standards-based system that can manipulate XML data but take advantage of the SQL applications. "XML is mapped into the server's relational tables, so you get the benefits of the table query and reporting and manipulation features," says Ressler.

"Our goal was for a Web developer not to know they are talking to a relational database but that they could just produce an XML document," Ressler notes.

This doesn't mean that developers won't require any third-party middleware programs to build their database/Web applications. But developers might have an easier time marrying their Web sites to their databases, and may be able to develop some of their applications entirely within Microsoft products.

Bulking up SQL Server with more capabilities is a good plan. "One-stop shopping is very appealing for a lot of customers," says Terilyn Palanca, analyst, Giga Information Group.

"These customers want to invest in the larger database vendors and also want fewer pieces to manage. The design center used to be solely what database server am I using, now it is e combination of what database and what application server am I using," she says.

Besides the Web-related improvements, SQL 2000 includes advances in reliability and scalability, a welcomed addition for existing SQL Server customers. "We had major problems with earlier versions of SQL Server," says Lee Fromson, the CFO of Cascade Designs, an outdoor equipment manufacturer in Seattle. "We use JD Edwards One World applications, and we would constantly have row-locking and performance issues. All of these problems disappeared with SQL 2000, and systems are operating the way they should."

The reaction by the analyst community to the reliability and scalability improvements has so far been positive. "Microsoft has added the features that could get them to the high-end scalable level, and it will be interesting to see how their competition responds," says Palanca.

Finally, there is a suite of analytical tools that are now part of the SQL 2000 package. There are tools to build data warehouses, to automate various tasks, perform error checking and take data from different sources and clean in up to import it into SQL databases.

"These were called OLAP services in SQL Server 7.0. These services are now part of the package with SQL 2000 and allow people to use algorithms to make predictions about their data, including data transformation tools, elementary modeling tools and various wizards to create them,"notes Ressler. "This is a very important set of features to us and we are investing heavily in this area for the long term."

"It's a very compelling version of the product," says Palanca. "It might pleasantly surprise people who have in the past discounted Microsoft."

For the full text, visit www.Windows2000Advantage.com.

www.Windows2000Advantage.com

Point of View

Compaq-Microsoft Relationship Driving Windows 2000 Success

By Mary Ryan Garcia

One of the key factors behind the strong debut of Windows 2000 is the Compaq-Microsoft Frontline Partnership. Compaq was the primary supplier of platforms upon which the Windows 2000 operating system was developed.

"The Windows 2000 Frontline Partnership is actually one of the longest standing coalitions in the industry," says Urs Renggli, Compaq's manager, Microsoft Software Marketing. Some benefits of the Frontline Partnership are lower total cost of ownership of the joint platform based on price/performance, plus reliability, availability and manageability.

Microsoft's Bruce Olson, account manager, high-end servers for Compaq, says customers want the reassurance of knowing the two companies are working hand-in-hand to bring Windows 2000-based solutions to market.

Key to the Windows 2000 Frontline Partnership is that Windows 2000 was developed on Compaq platforms. "This means as our customers go to deploy Windows 2000, it is going to work extremely well, have the highest degree of compatibility, and operability with the ProLiant, Deskpro, IPAQ and Armada platforms," says Renggli.

But the Windows 2000 Frontline Partnership faces challenges. "I think the biggest challenge is getting people to move out of evaluation and into deployment," says Renggli.

"We are working to jointly improve our service delivery capability," adds Olson. "We are sharing technology ideas on how to build the best tuning and optimizing for our joint platforms. Information learned from programs like Windows 2000 Datacenter will be shared throughout the Microsoft family."

In addition to Windows 2000 Datacenter, future innovations for the Windows 2000 Frontline Partnership include the 64-bit version of Windows 2000 and the next generation of Windows 2000. "Compaq continues to work hand-in-hand with Microsoft's engineering and marketing teams to ensure the highest reliability and performance of these new operating environments on Compaq hardware," Renggli notes.

For the full text, visit www.Windows2000Advantage.com.

GO

Developer Unleashes Palm Trojan Horse Program

Company downplays potential impact, but analysts predict increase in attacks

BY BOB BREWIN

AN INDEPENDENT software developer for Palm Inc. computers has created a Trojan horse program that can wipe all the files off the handheld device.

Julia Rodriguez, a spokeswoman for Santa Clara, Calif.-based Palm, acknowledged the existence of the program, which first surfaced two weeks ago, and said the company doesn't know of any "reports that any Palm user has been affected" by the program.

The developer, who goes by the name "Ardiri" on a Palm user site (*www.palmstotion.com*), said he designed the program to "clean up any redundant data files." Instead, according to the discussion thread on the Web site, the Trojan horse, which masquerades as a game called "Liberty," can wipe out all the files on the infected device, once executed. Ardiri said he had no intention of widely releasing the program but did provide copies to "a few friends."

After that, Ardiri wrote in a posting on the site, the Trojan horse started to proliferate throughout the Palm underground. Ardiri wrote that after realizing the potential extent of that distribution — the Palm developer community numbers more than 80,000 — he posted warnings about it on PalmStation.com and PalmGear.com.

"After many hours of thinking, I regret even considering what could be done with this application," Ardiri wrote, "and giving it to anybody on Palmchat was a big mistake."

Rodriguez dismissed any impact the program might have on Palm users. "All you have to do to get rid of it is a 'hot reset' and resync with your PC" to remove the program from an infected handheld device, Rodriguez said.

She added that Palm is well aware "that any electronic device is susceptible" to hacking and that the company is "working to make sure any such attempts are detected and intercepted and avoided." Rodriguez declined to provide specific details.

Network Associates Inc., an antivirus software company in Santa Clara, said it has developed and is distributing a new line of VirusScan Wireless security products that should provide protection for Palm computers and handheld devices running Microsoft Corp.'s Windows CE or Symbian Ltd.'s Epoc operating system.

IDefense Intelligence Services, an Internet security firm in Fairfax, Va., said in an analysis of the Palm Trojan horse that security will be needed as attacks on handheld devices proliferate.

In its analysis, iDefense said the appearance of the Liberty Trojan horse "fulfills experts' predictions that the Palms . . . would soon be hit by a virus or a Trojan. . . . Either virus writers will simply change the name and icon, disguising the Trojan, or they will borrow elements of its code to create a more dangerous program."

The statement continued, "Owners of [personal digital assistants] and other handheld devices are urged to exercise extreme caution and explore the feasibility of employing antivirus software as it becomes available."

JUST THE FACTS

An Attack On the Palm

- The Liberty Trojan horse is disguised as a game and can wipe out all programs on a handheld.
- It was created by an independent developer, who claimed it was designed to clean up redundant data files
- Palm acknowledges the threat from the Trojan horse but says it doesn't know of any users hit by the program
- Analysts are predicting copycat attacks and are suggesting that users obtain antivirus software.

Sony Prepared to Launch Palm-Compatible Handheld

Device to debut in monochrome in U.S.

BY MARTYN WILLIAMS

Aiming squarely at handheld market leader Palm Inc., Sony Corp. last week announced plans for a late-month launch of its promised personal digital assistant (PDA) based on the Palm OS.

Called the Clie Handheld, Sony's PDA will cost $399 — just like the Palm Vx and color Palm IIIc models sold by Santa Clara, Calif.-based Palm. Despite being available in color in Japan, the Clie will debut in the U.S. as a monochrome-only device — a move that indicates Tokyo-based Sony is aiming at style-conscious Palm Vx users rather than at Palm IIIc buyers.

Explaining the decision to market only the monochrome version in the U.S., Sony spokesman Ted Kanno said such devices are "dominant and taking root" in the PDA market here. U.S. buyers are also more focused on using handhelds as a work tool than Japanese customers are, Kanno said, but Sony isn't ruling out the possibility of offering the color version in the U.S. at a later date.

Sony's hardware, which was first detailed at the PC Expo in June, has little to differentiate it from the Palm Vx, analysts said. The Clie (pronounced "klee-ay") sports the same 8MB of internal memory as the Palm and is about the same size, although it weighs almost 7% more than the Palm Vx.

THE CLIE sports the same look – and price – as the Palm Vx

The largest difference between the two handhelds involves support built into the Clie for Sony's Memory Stick technology, which enables users to add up to 64MB of additional memory through an expansion slot. A 128MB Memory Stick is due next year, Sony said, and future development plans call for the expansion technology to act as a connector for digital cameras, Global Positioning System trackers and other add-on peripherals.

Another feature of the Clie is a Jog Dial navigator that Sony said will let users move through menus via single-hand scroll-and-select techniques. And unlike Palm devices, the Clie has video software that can display images at four to 10 frames per second, according to Sony.

Williams is Tokyo correspondent for the IDG News Service.

Online Bank To Offer Broadband

BY MARIA TROMBLY

USABancShares.com Inc. plans to officially launch its broadband service within the next few weeks as a means of differentiating itself from other Internet banks.

The service, which has been live for a month, offers customers all the usual bank functions — plus sound and video.

"The quality of information we can provide is more extensive and much more customizable than in a narrowband platform," said bank President and CEO Ken Tepper.

The Philadelphia-based bank will seek partnerships with broadband providers, Tepper added. "We're the only alternative," he said. "We're the only bank to offer a broadband experience."

USABancShares.com has already struck a deal with Santa Clara, Calif.-based Yahoo Inc. that gives the bank access to the portal company's broadband customers. The agreement also gives USABancShares customers access to Yahoo's FinanceVision, an interactive financial network based in Silicon Valley.

Broadband has high potential as a vehicle to provide customer service and sell complex financial products, said Richard Bell, an analyst at TowerGroup in Needham, Mass.

USABancShares' broadband service puts more technological pressures on the banking industry. This summer, a few banks began rolling out wireless banking services. Now, they'll have to go to broadband to keep up.

"I think eventually, virtually all banks with Internet functionality will follow suit," Bell said.

There are almost 3 million broadband subscribers in the U.S., according to Telecommunications Reports International Inc. in Washington.

"We see a sizable market for us," said Tepper, who added that he'd be happy with a couple million customers. However, he said the bank isn't betting the farm on broadband.

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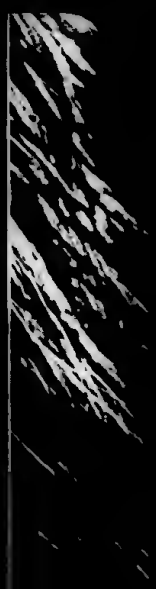

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Industry Giants Back Laboratory for Linux R&D

Goal is to speed up open-source growth

BY TODD R. WEISS

In a multimillion-dollar deal that backers hope will help bring Linux firmly into the world of enterprise computing, four industry heavyweights announced last week that they and other companies are creating the first independent, nonprofit development laboratory for Linux.

The Open Source Development Lab, to be based near Portland, Ore., is being built by Hewlett-Packard Co., Intel Corp., IBM and NEC Corp. The laboratory is expected to open by the end of the year.

Other companies sponsoring the lab are Caldera Systems Inc., Dell Computer Corp., LinuxCare Inc., LynuxWorks Inc., Red Hat Inc., Silicon Graphics Inc., SuSE Linux AG, TurboLinux Inc. and VA Linux Systems Inc.

The idea of the lab, according to the backers, isn't to create new projects. Instead, the focus will be on accelerating projects being developed by the open-source community.

"This will be the first of many labs we hope to open," said an IBM spokeswoman. Each of the four key partner companies is providing seed money for the project, as well as the personnel necessary to move it forward, she said.

A mix of servers and equipment will be in the lab to give developers the tools to produce applications for a wide range of environments, the spokeswoman said. The equipment will be accessible on-site or over the Internet, she added, with personnel ready to assist.

But in a world where Linux development has largely been accomplished by individuals in the field collaborating with one another in a sort of computer underworld, some observers wonder how the Linux development community will respond to a group of big guns getting involved.

"They have the buy-in from most of the bigwigs in open-source," said Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston. "The idea is that some of those folks from the open-source community will be on the board" of the new lab, helping shape its direction and future.

For IBM, NEC, HP and Intel, the motivation for helping to push the development of Linux is clear, Claybrook said.

"It is to their advantage to see Linux move up the food chain," he said. "Some of these companies are kind of fed up dealing with Microsoft [as the major operating system provider] all the time and being bullied."

Linux has plenty of promise and lots of open-source development already being carried out by others, saving the partner companies millions of dollars in development costs, Claybrook said. In addition, IBM and the other companies see the continued development of Linux as a way to rejuvenate their hardware sales.

Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass., said the only way Linux will be ported to large-scale hardware will be through the creation of such a lab, where independent developers will have hands-on access to leading-edge machines.

"It makes perfectly good sense for the companies who want this to happen to make the lab available," Kusnetzky said. "If they want the software development, they have to make it possible."

AT A GLANCE

Group Effort

The nonprofit lab will:

- Provide state-of-the-art hardware and support to allow the independent open-source community to move development to more complicated and costly servers.
- Be accessible on-site near Portland, Ore., or via the Internet for developers to test and create their applications and code.
- Be operational by the end of the year

Class-Action Suit Against Microsoft Not Dismissed

BY JENNIFER DISABATINO

Microsoft Corp. last week lost a bid to have a class-action suit thrown out in California, despite prior victories at getting similar class actions dismissed in other states.

Like more than 130 other suits filed around the country, the California class-action charges that users were forced to overpay for Windows and other Microsoft products because of what a U.S. District Court judge in Washington ruled to be anticompetitive behavior by the company.

Courts in Hawaii, Iowa, Kentucky, Nevada, Oregon, Rhode Island and Texas have dismissed similar lawsuits.

Some judges who dismissed the suits cited a legal precedent from a 1977 Supreme Court ruling that said a company can't be sued for inflated pricing if customers didn't buy the product in question directly from the manufacturer — a situation that the judges said fits Microsoft's selling model.

But San Francisco County Superior Court Judge Stuart R. Pollak denied Microsoft's motion to dismiss the case in California, which is a consolidated case of 27 state cases. His decision cited U.S. District Court Judge Thomas Penfield Jackson's "detailed findings of various forms of anticompetitive conduct by Microsoft" in the case brought by the U.S. Department of Justice (DOJ) against the company. The DOJ is seeking to bring the case before the Supreme Court to preclude a lengthy appeals process.

One lawyer said some states, such as California, have looser regulations than other states and may be more willing to hear the class-action suits. "We're seeing a case study of one of the few states that will recognize indirect purchaser actions," said Hillard Sterling, an attorney at Gordon & Glickson LLC in Chicago.

But, Sterling noted, there are contradictions between the class-action complaints of high pricing and the federal government's claim that Microsoft used aggressive pricing policies to stifle its competition.

Microsoft apokesman Jim Cullinan said that, considering California law, "the ruling was not surprising to Microsoft." However, he added, "the plaintiffs have a buge burden, which we don't think they could possibly meet."

He also noted that there were only two class-action suits filed before Jackson ruled on the DOJ case.

Oracle Sales Software Is Free

BY MATT HAMBLEN

Oracle Corp. last week announced a free online service to provide businesses with access to Oracle sales automation products.

The company said in a statement that more than 400 medium-size and large companies in 15 countries are managing their sales activities with OracleSalesOnline.com.

The service can help a business get a sales force with as many as 500 representatives up and running, enabling the forecasting and tracking of customer information, Oracle said.

Analyst Sheryl Kingstone at The Yankee Group in Boston said the offering is the first in a series of applications from Oracle's E-Business Suite 11i that will be online.

Kingston described Oracle's move as a direct attack on Siebel Systems Inc. in San Mateo, Calif., the leader in customer relationship management applications. But, she added, while the plain-vanilla version of Oracle's applications will be free and easy to install, "nothing is ever free in the software world."

Kingston explained that a user will incur costs if the product is customized. And, she warned, certain companies might find that a one-size-fits-all approach isn't suitable.

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Sabre Buys GetThere, Will Cut 1,200 Jobs

BY MICHAEL MEEHAN

Arguments over which company was leading in the business-to-business travel procurement space were put to rest last week as Sabre Holdings Corp. purchased its chief competitor, GetThere Inc. in Menlo Park, Calif., for $757 million.

Fort Worth, Texas-based Sabre also announced plans to cut 1,200 jobs companywide during the coming months, or about 11% of its workforce, to improve growth and profitability. Sabre and GetThere officials said most of the cuts will be in Sabre's traditional travel-agency support business.

Sabre said the job cuts would occur through attrition and layoffs and are expected to save the company $100 million annually beginning next year. The new entity will retain GetThere's name, and GetThere President and CEO Gadi Maier will head Sabre's Business Travel Solutions (BTS) division.

This past spring, GetThere announced plans to launch a supplier-direct network that would put corporate buyers in direct contact with airlines, hotels and car rental agencies, bypassing traditional computer reservations system like Sabre.

Rob Wald, director of product marketing at e-Travel Inc. in Waltham, Mass., said GetThere may not be able to build systems that don't rely on Sabre's travel architecture. "I think it's questionable as to whether Sabre will ultimately commit to that business model," Wald said. E-Travel, an Oracle Corp. subsidiary that operates a supplier-direct network, has placed third in the business-to-business travel race.

Some Doubts

Peter Stevens, Sabre BTS's vice president of business and product development, questioned the supplier-direct concept this past spring. Last week, Stevens said he still had questions but added that Sabre "wants to be there if this is the market that's going to break."

GetThere Chief Operating Officer Ken Pelowski said many merger details, such as which company's customers will be migrated to new systems and whether more of GetThere's systems will use Sabre's technology, will be disclosed after the deal is finalized in the next few months.

Analysts said they don't foresee any antitrust concerns arising in the business-to-business arena, though efforts in other industries have drawn regulators' attention. "There isn't enough of a market to corner yet," said Melissa Shore, a senior analyst at Jupiter Communications Inc. in New York.

Shore said that she expects the business-to-business travel market to far exceed the consumer market once companies begin to fully use the offerings of Sabre/GetThere, e-Travel and Amadeus Global Travel Distribution LLP, which has partnered to build a business-to-business offering with Lotus Development Corp.

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BRIEFS

Sun Goes Open-Source With Solaris Code

Sun Microsystems Inc. has announced plans to release the internationalization source code for its Solaris operating system to open-source software developers. The open source code will make it easy for developers to create applications running in multiple national languages under Unix and Linux, Sun said. Until now, programmers have had to write separate code for each language they want to support in an application. Sun will release the code Sept. 15 to X.org, the nonprofit consortium for X Window System operating standards.

Ericsson, Partners Form $300M VC Fund

LM Ericsson Telephone Co. in Stockholm has partnered with a group of investment companies to form a $300 million venture capital fund targeted primarily at mobile Internet ventures and technologies. Merrill Lynch & Co., AB Industrivärden and Investor AB are the other founding members of the fund. The four partners will each contribute $75 million to the fund, named Ericsson Venture Partners, which is scheduled to be operational by next month. With a focus on Europe and North America, the fund aims to spread its investments across a broad range of mobile Internet technologies, including applications, network infrastructure and services.

Short Takes

SONY CORP. plans to invest $940 million over the next five years to construct and later expand a semiconductor factory in western Japan. . . . ADVANCED MICRO DEVICES INC. in Sunnyvale, Calif., announced the resignation of Larry Hollatz, group vice president in charge of its PC processor business. . . . The public beta for APPLE COMPUTER INC.'s Mac OS X is slated to be rolled out Sept. 13 at the Apple Expo in Paris. . . . POPCAST COMMUNICATIONS CORP., a provider of business-to-business streaming media software and services in Los Angeles, said it has received investments totaling $10.8 million from INTEL CAPITAL and TELESYSTEM LTD.

MicroStrategy Lays Off 234, Restructures

Financial efforts include management shuffle and new partners, investors

BY TODD R. WEISS

BUSINESS management software vendor MicroStrategy Inc. will lay off workers for the first time since its creation in 1989 as part of a restructuring plan that aims to turn around the company's financial future.

The Vienna, Va.-based company, which has watched its stock price drop from $333 per share March 10 to $27.50 recently, announced the restructuring plans last week.

"Our year-to-date financial performance has been unacceptable, and we are firmly committed to strengthening our business," said CEO and President Michael J. Saylor. "Reducing head count was a very difficult decisioo for us to make. However, this reductioo was a necessary step in our plan to improve operating results," he explained.

The layoffs of 234 people — 10% of the company's workforce — will he completed later this month.

While the markets for MicroStrategy's data mining and customer relationship management software remain healthy, the firm was hard-hit economically earlier this year when it had to restate its earnings from 1997 to 1999 to accommodate new federal revenue-reporting guidelines, said company spokeswoman Ivy Eckerman. The restatements lowered the company's revenue figures for the past three years, sending it into a tailspin on Wall Street.

"With the restatement, there was some hesitancy to close deals" among some customers, said Eckerman. "MicroStrategy is trying to aggressively get back on track. We have tremendous technologies, and we're trying to address any concerns people have with our business."

The company did get some good news in June, when it received $125 millioo in new financing from an investors' group. Since then, it has signed up new partners and launched an online store where customers can evaluate and purchase the company's electronic-business software applications. The company is also expanding its target audience to woo small and midsize busioesses, which it hasn't tapped in the past.

Early last month, MicroStrategy juggled its management team, naming Eric Brown, former chief financial officer of subsidiary Strategy.com, as the new MicroStrategy chief financial officer.

Analysts say the restructuring is good for the company.

"Wall Street will respond favorably to the move, to see that executives know where to go to trim the fat," said Bob Moran, an analyst at Aberdeen Group Inc. in Boston.

"I have not heard one rumbling from [MicroStrategy] clients — those who have bought their systems — losing confidence in the company," Moran added.

Fighting the Good Fight

"Make no mistake, they have a fight in front of them" to return to a healthy financial state and to continue as one of the market leaders, Moran said. "But they didn't get to where they were without stellar technology and marketing."

Dan Vesset, an analyst at International Data Corp. in Framingham, Mass., said that if MicroStrategy follows through with the staff reductions in administration and doesn't touch the research and development staff, the restructuring won't hurt the continued development of its products.

"They are strong enough to get through" the tough financial times, Vesset said, "as long as they keep their technology strong."

AT A GLANCE

New Plan for MicroStrategy

As part of its plan to reduce costs and reshape its customer base, the software maker will:

- Lay off 234 administrative and general staff workers across North America, or 10% of its staff, saving $25 million.
- Incur restructuring charges of $4 million to $8 million this quarter for reorganization.
- Reach out to smaller and midsize companies in an effort to widen its customer base beyond large firms.

Ariba Takes Steps to Make Its Software Multinational

Updated version supports euro

BY JULIA KING

Ariba Inc. last week released an updated version of its Ariba Buyer electronic-procurement software. Version 7.0 supports seven languages and multiple currencies, including the euro.

Analysts described the multinational functionality as absolutely vital for the Mountain View, Calif.-based software maker to sell to large Global 2000 companies, which increasingly are looking to source goods worldwide.

Global Software Execution

"Right now, rollouts [of Ariba's software] are based primarily in the U.S. This will definitely add to their ability to execute globally," said Carl Lenz, an analyst at Gartner Group Inc. in Stamford, Conn.

Tom Conarty, CIO at Bethlehem Steel Corp. in Bethlehem, Pa., said the $4 billion company will tap the multilanguage version of the software to electronically purchase raw materials from suppliers worldwide.

Users at Bethlehem's corporate headquarters are now using a previous version of Ariba's software to electronically buy indirect goods and maintenance, repair and operating (MRO) goods.

Approved purchase items and suppliers are listed in the company's electronic catalog, which employees reach over a corporate intranet.

During the next three mooths, Conarty said, the software will he deployed to all of Bethlehem's business units, which will then start buying direct goods online as well.

"The initial forays with Ariba [companywide] will he in the areas of indirect and MRO procurement. After that, we'll move into direct procurement," Conarty said. "From a supply base, this is where we can get into a global situation with buys of coal, coke and other raw materials."

BETHLEHEM STEEL'S Conarty says software will streamline buying of raw materials

Conarty noted that savings will accrue from streamlining the purchasing processes for direct and indirect goods, although he had no specific cost-savings figures.

Ariba officials said other features in Buyer Version 7.0 include a simpler, more intuitive user interface and an optioo that enables a company to deploy a single instance of the procurement software in a central location but lets company users worldwide tap into the system in their preferred languages.

Ariba said its user base comprises more than 200 global companies, including Chevroo Corp., Texaco Inc. and Hewlett-Packard Co., where some 20,000 employees use the software.

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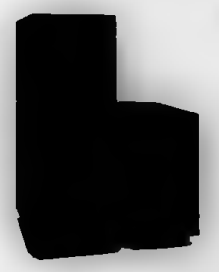

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PATRICIA KEEFE

Sun's Pentium moment

LAST WEEK'S REVELATION that Sun Microsystems extracted nondisclosure agreements from aggrieved customers in the wake of memory caching problems with its Ultra Enterprise series is an outrageous violation of IT trust and goodwill. It's embarrassing enough for Sun to have to admit that after a year or more of trying, it still can't fix a problem plaguing its top-selling product line [Page Ooe, Aug. 28]. Even worse, the company's statements downplaying the impact of the problem were contradicted by analysts and angry users, who say the issue has affected a lot more sites for a lot longer than Sun claims. But getting caught gagging customers in return for speedy service and full disclosure is the real public relations nightmare.

PATRICIA KEEFE is Computerworld's editorial director. Contact her at patricia_keefe@computerworld.com.

This is truly Sun's "Pentium moment," the point when vendor arrogance and mistreatment of customers backfires in a painfully public way, as it did when Intel tried to shrug off problems with a new batcb of Pentium chips. It's all so unnecessary.

IT leaders understand that technology isn't infallible. They know products can be fixed, replaced nr superceded. Given Sun's engineering prowess, most users would expect one or the other to eventually happen. But in the meantime, they expect to be treated with respect as partners in solving the problem. Sun Chairman Scott McNealy and CEO Ed Zander should apologize to every customer forced to sign a nondisclosure agreement and then fire the executive who dreamed up this exercise in paranoia.

They need to realize how they have shortchanged these enterprise customers by coospiring to keep other Ultra Enterprise users in the dark and by suggesting that affected sites weren't entitled to Sun's full attention unless they signed on as accomplices.

As one user told us last week, Sun "treated the whole thing like a cover-up. . . . Our lawyers did not like the NDA, and Sun became very hostile. They wanted us to sign an NDA that we would not talk to anyone else about the problem. That absolutely is a red flag that there is a major system problem."

These nondisclosure agreements were signed under duress, and it's clear that users deeply resented it.

If vendors want to strike up mutually supportive partnerships with their users, tbey have to stop treating them like enemies.

Having violated its pact with customers, Sun is about to find out how hard it will be to regain their trust. Restoring customer faith is lot more complicated than fixing a server, and a much less certain endeavor. ◗

What do you think? Post your opinion on our Community Forum online, at www.computerworld.com/forums

JOHN GANTZ

Get the most out of Web site evaluations

THERE ARE SOME very good services out there for testing Web sites, and I used to think they were the answer to a lot of Web site ills. Now I know better. I have gotten close to a couple of companies that have conducted the tests and have seen them struggle to use the information they paid for.

It's not that the tests don't work. It's that companies aren't able to mobilize around the results. I've seen Web site improvements stymied for reasons ranging from the need for a new worldwide WAN to the lack of common authoring systems inside the company. Often, the changes most called for require a level of commitment — money, time and attentioo — that companies weren't expecting wheo they initiated their evaluations.

JOHN GANTZ is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at jgantz@idc.com.

The following are some tips for those of you cootemplating the use of a Web site testing service:

1. Do the test when you're heading into a major redesign. You'll be spending money anyway, and the test will help you prioritize features to test. If you do the test and aren't committed to making the changes indicated, you've wasted the test. If you wait six months to implement the results, they'll probably be invalid.

2. Do lots of internal public relations before the test. In many cases, you already know what you need to fix or redesign in your Web site, but a redesign effort will get more commitment if there is corroboratioo from outside the IT organization. Management will feel better about spending mooey oo a Web site redesign or upgrade if an "authority" outside IT makes it clear where the work is needed.

3. Pay attention to the test routine itself. Like anything else, the more time and effort spent at the froot end, the more useful the results will likely be. Consider hiring an outside consultant to help you decide what aspects of your Web site to test.

4. Test competitors. Having your Web site evaluated can tell you lots about where to fix it, but testing your competitors can tell you how urgent the need to fix it is. This can help secure funds. The results can be invaluable in helping you prioritize improvements.

5. Do lots of internal PR after the test. If you're going to go through a major Web site redesign, you're

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Enterprise Management Paves the Way for Successful E-Business

As if managing a company's IT infrastructure was not difficult enough already, the onset of E-business practices brings a wealth of new enterprise management challenges. In an effort to increase revenues and remain competitive, many corporations have recently deployed e-business applications only to discover that their customers become quickly disenchanted with the overall level of service provided.

Unfortunately, service levels of e-business applications degrade with the exponential growth of users. The internal IT infrastructure, on which the e-business applications rely, is negatively impacted by the additional transaction load. With competitors only a click away, poor service levels will quickly lead to customer dissatisfaction and lost business.

With competitors only a click away, poor service levels will quickly lead to customer dissatisfaction and lost business.

So businesses are finding that implementing best practices in enterprise management has become critically important for managing the service levels of their e-business applications. Without sufficient enterprise management in place to detect and address these issues, a company's early success with e-business can quickly turn against it.

Virtually every company embarked upon its e-business strategy with the primary objective of increasing its overall revenues (the "top line"). The general idea was that an e-business can more effectively service its customers because it's open 24 hours a day and can be accessed from any point on the Internet. Customers no longer required direct interaction with a company's sales force in order to get product information or make purchases. And a company's increased effectiveness in reaching customers typically translates to increased revenues.

A great example of this type of e-business is Worldspan. Worldspan is one of this year's gold award winners in the BMC Software Best Practices in Enterprise Management program. As it's responsible for more than 50% of all online travel reservations (air, car, hotel, etc.), Worldspan quickly recognized the need to establish premium service levels for its e-business applications. The company has been so successful at managing its own IT that it has recently entered into a new business – hosting Web sites for other e-businesses. In this case, the IT department has excelled at its own function and turned what is a cost-center for most businesses into a new business opportunity. Congratulations to Worldspan for using its best practices in enterprise management to ef-

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fectively increase its revenues.

The second wave of e-business strategies has been focused on increasing an organization's efficiency by cutting costs, thereby increasing the profit margin (or "bottom line"). In response to the increased workload resulting from doing business over the Internet, many corporations have begun to decentralize the IT function. But this approach quickly leads to redundant staffing and higher costs.

In this supplement Worldspan and the other winners, including Mirage Resorts, Bank of America, Burlington Northern Santa Fe and Pacific Gas & Electric, show you their best practices in other areas, including hospitality, the shipping industry and the utility industry.✤

STEVE FOOTE, *president & CEO of Ensuero.com, works closely with his customers' executive management teams designing, building and implementing e-business strategies. Prior to co-founding Ensuero.com, his business experience included management participation in two IPOs, two private placements, one merger and 29 acquisitions. His technical background includes developing applications, running large-scale IT management departments, managing growing software companies and analyzing high-tech markets.*

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Mirage Resorts

Mirage Resorts saves millions and boosts quality by remotely monitoring computer rooms

GOLD AWARD WINNER

When Mirage Resorts Incorporated unveiled the Bellagio hotel in Las Vegas and the Beau Rivage resort in Biloxi, Miss., it was time for a fresh approach to enterprise management. After all, another 150 hosts were being folded into the company's IT environment. The number of Mirage employees had jumped from 18,000 to 30,000. The company was supporting 106 applications, and its mix of host, client and storage devices was only growing more diverse.

Under the company's former distributed management model, these circumstances would have required hiring an additional 53 IT employees. But the $2.6 billion leader in the hospitality and gaming industry was reluctant to add increasingly scarce and expensive IT employee resources to accommodate new properties. The handwriting was on the wall that this method of supporting its IT environment was not going to scale well, from a budget or a service-quality perspective, explains Laura May, director of systems engineering in Mirage Resorts' information systems group.

"We wanted to run a lean shop and get the most from the people we already had," she explains. "In addition, human error had begun creating some quality issues." As the company grew, so did the service-quality challenges associated with having too many manual IT processes. The company had established service-level agreements (SLAs) with its user base but was having trouble delivering on them consistently, May says.

There were also training hurdles to overcome. IT technicians needed to understand multiple management systems from a potpourri of vendors, which slowed down troubleshooting and problem resolution. The company was facing the support of 13,000 networked nodes, including Windows-based terminals, PCs and cash registers. These were spread across five locations in Las Vegas, connected by a 4G bit/sec backbone metropolitan area network and the Beau Rivage property connected by an ATM WAN link.

PATROL provides us with centralized management of our computing environment.

GLENN BONNER

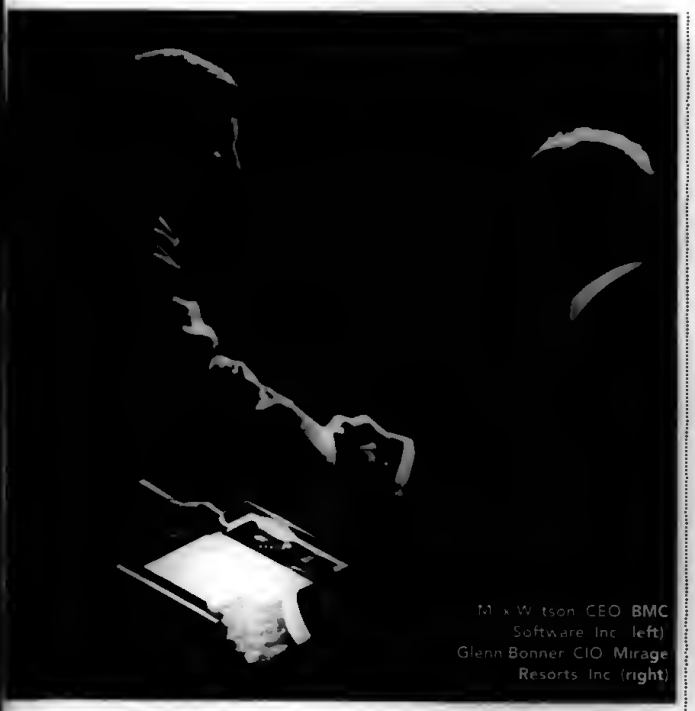
Taking a new tack

In 1997, Mirage Resorts began investigating centralized management alternatives. Its product evaluation criteria included multi-platform support for clients, ease of implementation, a cost-effective pricing model, top-quality vendor support and product scalability, says May. Mirage narrowed its vendor candidates down to BMC Software (then Boole & Babbage) and two others. During the review process, Boole & Babbage purchased one of the other finalists. The remaining competitor's pricing model did not scale well, says May. It also required two platforms to support the mix of Mirage Resorts' computing environments, where the Boole & Babbage COMMAND/POST® product could fill the bill with one.

The impact of the COMMAND/POST, which was renamed PATROL® Enterprise Manager, installation two years ago has been dramatic. The company now fulfills its user SLAs 91% of the time on average — up from 76% — "and we're still climbing," May notes proudly. The benefit has been not only to Mirage Resorts' internal but also external customers. Mirage Resorts' IT staff are measured against their ability to deliver on IT SLAs, so the installation has been a professional win for them, as well.

Finally, Mirage Resorts estimates that it has saved $3 million in IT staff compensation alone over the past two years. The savings come on a $500,000 investment in the PATROL Enterprise Manager system and related modular tools from BMC Software.

The installation of PATROL Enterprise Manager kicked off an all-out IT best practices effort at Mirage Resorts. Because the installation was so successful, it



M x W tson CEO BMC Software Inc (left) Glenn Bonner CIO Mirage Resorts Inc (right)

is being used as a management model throughout the company For instance, Mirage Resorts has since centralized its PC software installations and troubleshooting and has closed four computer rooms. In addition, systems in the Bellagio and Beau Rivage sites were the first in the company's history to go live with computer rooms that are managed remotely. "This was enabled completely by PATROL Enterprise Manager," says May

PATROL Enterprise Manager's consolidation of multiple system views onto a single screen with a common interface has eliminated the training headaches of the multi-vendor management environment. Mirage Resorts is also realizing its goal of making the most of each employee's talents. "Since they are no longer spending all their time fire-fighting, our technicians are becoming platform specialists and are performing more analysis, making their jobs more interesting and aiding in staff retention," May says.

The scripting capabilities in PATROL Enterprise Manager have automated 2,500 of Mirage Resorts' 10,000 manual tasks, including nightly hotel system pre and post audits and point-of-sale audits. This has reduced manual operations by approximately 400 hours per week It has freed up technicians from clerical duties and has vastly reduced human error, May says.

The company says there are user requests that it once could not satisfy but now can because of PATROL Enterprise Manager. For example, the software's scripting capabilities have allowed the company's payroll manager to be automatically notified when certain events take place

May says that PATROL Enterprise Manager has reduced service downtime because of its ability to quickly correlate events, which enhances troubleshooting, and because of its automation strengths. For example, Mirage Resorts established alerts so that when server disk space reaches a specific percentage consumed, PATROL automatically logs onto the system and expands the file space capacity Also, the product has been customized to identify certain SQL errors and fix them before they affect users.

The resulting boost in uptime of Mirage Resorts' systems — including the company's Casino, Credit and Marketing; Slot Marketing; Hotel, Food & Beverage; Ticketing; Retail and other key applications — translates into benefits for Mirage Resorts' customers. "With PATROL we have less downtime of our system, which translates into a better experience for the customer," May says.

For others who may embark on centralized enterprise management processes and automation, May advises dedicating staff resources to implementing the system. When Mirage Resorts got started, its approach was to have staff already immersed in daily operations find the time to handle the implementation project Mirage Resorts discovered, though, that already-busy staff did not have the luxury to focus strategically on the PATROL Enterprise Manager implementation and future impact.

At press time, Mirage Resorts was in the process of merging with MGM Grand, Inc., which owns another nine casino properties. May says that at this juncture, the existing command center is slated to go right on monitoring and automating the MGM properties, too. "Now that we've found it, we don't expect our best practices model to change," she says. ✤

MIRAGE RESORTS, INCORPORATED
http://www.mirageresorts.com

Max Watson, CEO, BMC Software, Inc. (left), David Anderson, project manager, Worldspan, Inc. (right)

Worldspan

The travel services giant grows its customer base and service portfolio without adding IT staff

Worldspan, Inc. is no stranger to the stringent system uptime demands now becoming common amid the e-commerce frenzy. For many years, Worldspan and its brethren in the travel services industry have relied on fault-tolerant computer reservation systems (CRSs) to host mission-critical travel-related applications, which must be kept running around the clock.

Still, as business processes across all industries grow increasingly automated, service-level expectations continue to rise at Worldspan, one of the world's largest CRSs. Its bottom-line mission is to deliver new levels of service to a growing base of worldwide subscriber organizations and to launch new e-commerce services — all with little or no additional IT headcount, says David Anderson, project manager at the $722.5 million, Atlanta-based company. These goals are being met by an ongoing, company-wide IT automation project that has been designed around BMC Software's PATROL Enterprise Manager, formerly called COMMAND/POST, centralized event management system.

GOLD AWARD WINNER

Raising the availability bar

Worldspan is committed to providing nearly nonstop access to airline, hotel room, rental car and other travel-related data from hundreds of providers, as well as transaction processing, reservations, and ticketing capabilities to the 18,500 worldwide travel agencies that subscribe to their services.

Delivering on its ambitious customer commitments requires that Worldspan monitor some 10,000 devices and an intricate web of worldwide frame-relay links. And action on problems must be taken fast.

"We deliver management information to our help desks within five minutes of a system or network occurrence," Anderson says. "Achieving that means we must now

be 100% proactive in troubleshooting." The five-minute notification standard compares with a pre-automation scenario of up to 45 minutes for a help desk to be alerted. The reason was that at the time, it was not uncommon for users to be informing IT staff of problems or outages, rather than the other way around.

Eight-fold drop in repair time

Because it consolidates a comprehensive view of system and network events and alarms on to a single display with a common interface, BMC Software's PATROL Enterprise Manager enterprise management system has helped Worldspan slash its IT problem resolution time by nearly eight-fold. For one thing, the software enables technicians to make associations among separate alerts. Instead of opening individual trouble tickets for each problem, technicians can determine that there is likely a bigger-picture issue at hand.

All Worldspan subscriber companies are linked to a sprawling frame-relay network supplied by AT&T, which connects them to Worldspan host services at varying speeds. "If we have fully populated an AT&T circuit in Denver with travel agency customers, and we start seeing that a certain percentage of these connections are failing, we can determine that the cause is likely the carrier's facility, rather than, say, an individual host interface somewhere," Anderson explains. "We can alert AT&T that there is a T1 down in Denver."

Generating such information quickly in the automated fashion enabled by PATROL has dramatically reduced Worldspan's mean time to repair (MTTR). In March of 1998, Worldspan implemented automated trouble ticket generation based on PATROL Enterprise Manager event correlation, and in the third quarter began publishing the tickets to its intranet Web site to alert help desks and management. The intranet trouble ticket page is updated every minute and provides a real-time display of the open issues as well as a work list for technicians.

Initially, MTTR at Worldspan dropped from 146 minutes to 123 minutes on average per trouble ticket (well below a corporate goal of 240 minutes). In the fourth quarter of 1998, it fell further to a 60-minute average. "We feel that this drastic improvement is due to the automated ticket generation, which requires less paperwork and time, and the fact that all problems in excess of five minutes are tracked and placed in public view [via the intranet]," Anderson says.

Doing more with less

The centralized automation monitoring capabilities of PATROL Enterprise Manager are also enabling Worldspan to do more with less. Before the PATROL installation, Worldspan had to expand its IT staff incrementally as it added new customers and services. "For example, if we gained three customers, we had to add two technicians for monitoring," says Anderson. "Now, we can add less incremental headcount to take on new business, which is, of course, the bottom line."

Now, we can add less incremental headcount to take on new business, which is the bottom line.

DAVID ANDERSON

For example, in early 2000, Worldspan took on a new business venture hosting Web services for non-Worldspan participants. Because of the automation enabled by PATROL Enterprise Manager, the company launched and maintained this new service with no new staff hires, Anderson notes.

Overall, the number of remote sites a single technician can support has increased dramatically. A technician can now support 500 sites, up from 150 sites supported per technician in the pre-PATROL Enterprise Manager era, says Anderson. Feedback the IT group has received from the sales force reinforces this finding. According to Anderson, the Worldspan field is reporting that time it once spent responding to trouble calls is now being used to serve additional subscribers.

Proof in the pudding

In 1999, Worldspan contracted with GartnerGroup to analyze and benchmark its data center operations against the industry and to identify areas for improvements. Gartner reported that Worldspan was outperforming most of its peers. Worldspan's IT costs were 42% lower than the average of peer companies and 11% lower than the average of Gartner-identified top 10 performers.

Because of the value it has added to managing the Worldspan business, PATROL Enterprise Manager was among a few projects not subjected to cutbacks in Worldspan's 1999 budget review meetings. Additional funding was obtained in 1999 for expansion and, late last year, Worldspan extended its PATROL Enterprise Manager installation by adding backup servers with added redundancy. The company was clever about its implementation, having the backup network do double duty as a development network and as a backup network.

Anderson anticipates that Worldspan's next IT automation milestone will be to install the remainder of BMC Software's PATROL 2000 software for cross-platform application management. "That will enable us to look at processes and components within our data center and further confirm or eliminate additional failure sources," he says. "We hope to be getting rid of our current manual systems for inboard systems monitoring and outboard systems processing." ✥

WORLDSPAN, INC.
http://www.worldspan.com

Bank of America

Using PATROL Enterprise Manager, this financial institution has vastly improved customer service, availability and reliability

Paul Marshall, vice president and systems manager, Bank of America

How would you like to be responsible for the safe passage of $800 billion every day? That's the amount the international payment delivery systems handle daily at Bank of America. "Whether the transaction is as small as a few dollars or as large as several million, we must treat them as though they are all worth a billion dollars," says Mervyn Gutteridge, senior vice president, based at the bank's data center in Croydon, England.

Bank of America has dramatically improved its service levels to meet that goal with PATROL Enterprise Manager (formerly called COMMAND/POST) from BMC Software. With solutions based on PATROL, the global financial institution has been able to consolidate operations platforms and implement message management and automation.

The bank has two other data centers in Bromley and London, England, and a fourth in Kuala Lumpur, Malaysia. The centers operate global wholesale banking and global cash management systems; trading floor systems for 34 dealer locations; and payments and clearing interfaces for all major currencies and central banks. The challenge facing Gutteridge and his colleague, Paul Marshall, was to efficiently monitor these critical systems in a user-friendly environment.

SILVER AWARD WINNER

The answer was to consolidate the key systems into an enterprise management automation system and a single monitoring platform via PATROL Enterprise Manager. Now, personnel log into one of the 15 workstations in the Croydon service center, and their workstations are configured to their specific skill sets. As technicians complete more training, functionality is added to their software profiles. In essence, they are technical support analysts and a first-level technical help desk.

"We have an environment in which people can learn and progress," says Marshall, vice president and systems manager for Bank of America. "We have a highly motivated staff, and our attrition rate is lower."

Without PATROL and automated management, Gutteridge says the bank would have needed 350 monitors and the personnel to watch them. "It would be an unpleasant, ineffective and expensive environment, and we couldn't possibly have provided the quality of service we do today," he says.

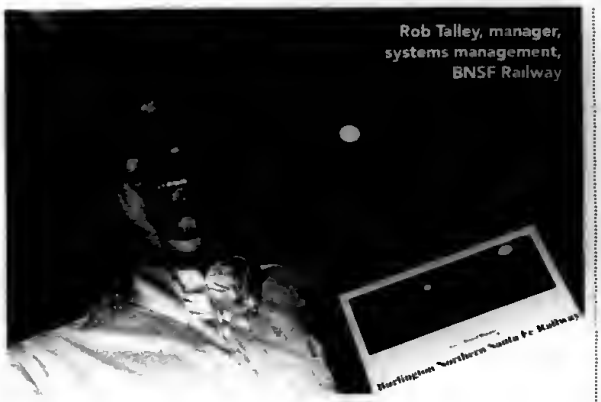
His internal customers asked that their monthly service-level meetings be reduced to once a quarter because of lack of problems to discuss. In addition, while the department's workload increased by approximately 100% over three years, its headcount decreased by about 30% in the same timeframe — and technology incidents resulting in financial losses have decreased from several each month to about one in every quarter.

Quality is so superior that the automated management benefits are part of the bank's sales message. "We frequently bring clients into the data center and demonstrate the automation system capabilities," Gutteridge explains. "Clients are clued to the fact that the products we deliver to them are only as good as the systems that run them."

Gutteridge and Marshall continue to bring new systems under their PATROL automation umbrella, a process they view as simply adding a connection to a system that is flexible and scalable enough to meet whatever the future holds.

"Automation management is a culture, a way of life, a way of thinking," says Gutteridge. "The project never has an end; it's always evolving." ✤

BANK OF AMERICA
http://www.bankofamerica.com



Rob Talley, manager, systems management, BNSF Railway

Burlington Northern and Santa Fe Railway Company

SILVER AWARD WINNER

PATROL helps keep the trains rolling, meeting 98% to 99% system availability

Whether they're moving coal or cardboard, cars or containers, the shippers that rely on The Burlington Northern and Santa Fe Railway Company (BNSF) to transport their goods from one end of the United States to the other want up-to-the-minute data about their shipments, wherever their location in the vast railway system.

"We never forget our big C, the customer is the shipper," says Rob Talley, manager, systems management, BNSF Railway. To keep shippers happy, BNSF Railway business units access data about shipments, train operations, efficient routes, available locomotives and rail maintenance — all through the systems Talley monitors.

The challenge was to provide a single view of those systems, instead of looking at individual segments — an inefficient approach requiring an operator to talk with operations personnel manning other terminals to pinpoint a problem, Talley says. "We wanted to give everyone the same view of the alerts, whether the issue was in a mainframe, the network, a server, or an application," he says.

BMC Software's PATROL Enterprise Manager (formerly called COMMAND/POST) was chosen because of its ability to provide an enterprise view of events from a system.

Talley and his team succeeded, a fact he attributes to the people, processes and procedures as much as technology. "The BMC Software Silver Award represents not just what my team has done, but the entire efforts of our IS staff," he says. "The Award recognizes the dedication of BNSF's IT professionals to making the system work."

Talley's team quickly identified the most critical systems to manage. "That gave us a direction for our initial implementation, so we could get the biggest bang for our bucks and show management we were making progress," Talley says.

A key feature is the system's ability to consolidate alerts from multiple systems into one monitor. For example, Talley uses BMC Software's MAINVIEW® line of products in his mainframe environment, with MAINVIEW forwarding alerts to PATROL Enterprise Manager, which his team has customized with additional help functions and system maps. That enables operators to quickly identify conditions that might lead to an outage and rectify the situation before any downtime occurs.

For 1999, BNSF established goals of 98% to 99% availability for key business systems, applications and servers. With help from the solution built on PATROL Enterprise Manager, all 1999 availability goals were achieved.

If a major problem ever occurs, there's a Critical Problem Review to identify and rectify the root cause.

"We have a continuing cycle for improvement," Talley notes. "The ultimate winners are the BNSF Railway customers who ship with us." ✤

THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY
http://www.bnsf.com

Pacific Gas & Electric

PATROL helps utility save money, streamline operations and improve service and reliability

SILVER AWARD WINNER

Most utility company customers never know what efforts are required to keep their refrigerators humming and their computer cursors blinking. But at Pacific Gas & Electric (PG&E), internal customers hear a lot about what it takes to keep the systems working smoothly.

"You must constantly tell people what you're doing," says Joseph Soldevila, automation project manager for the Fairfield, Calif.–based company. "If you prevent problems and people don't understand how you're doing that, they wonder if they're getting their money's worth."

That's why Soldevila has explained the benefits of PG&E's enterprise automation solution in more than 30 presentations posted on the company's intranet. The solution includes BMC Software's PATROL Enterprise Manager (formerly COMMAND/POST) and is part of a story that led to a Best Practices Silver Award from BMC Software.

"Our ability to show how we integrated our automation tools to provide high availability of corporate applications across the enterprise was one of the key metrics that allowed us to win this award," says Dana McKibbin, director of Fairfield and San Francisco operations at PG&E.

Before his group implemented the automated enterprise management solution, the end-user groups wanted to monitor critical systems using their own tools instead of his group doing so. That was counter to the IT organization's goals of consolidating, automating and focusing on enterprise versus platform solutions.

In addition, the systems under Soldevila's control were viewable from separate tools, and took many IT operations personnel to monitor them. "No matter how good you are, you're bound to miss something with that volume," Soldevila notes.

His goal: Save money, streamline operations and improve performance. It will be accomplished by enhancing his group's services, convincing other users to let him monitor their systems — and bringing his department into alignment with the IT organization's objectives.

To accomplish this, Soldevila's team implemented an automatic notification engine as part of their enterprise management solution, which incorporates BMC Software's PATROL Enterprise Manager and MAINVIEW line. The engine enables operations personnel to quickly see and address high-priority system issues. "Our systems generate more than two million alarms a day and not all of those are important," Soldevila explains. "This technology suppresses the non-critical issues, so we can focus on the big-ticket items."

For instance, the MAINVIEW products used in PG&E's mainframe operations area monitor and automate that area so that it's rare that human intervention is required. When it is, alerts go up to PATROL and the notification engine. The engine automatically sends alerts to key operators and users in the manner they've requested.

PATROL Enterprise Manager has enabled his group to prevent problems from escalating into major system outages. Further, "As we add new applications and systems, I don't have to add staff. I plug these things into the enterprise system and work with the client to find what they need notification on," says Soldevila. ✤

PACIFIC GAS & ELECTRIC
http://www.pge.com

Dana McKibbin, director of Fairfield and San Francisco operations at Pacific Gas & Electric

Getting to the Winner's Circle

Awarding BMC Software's customers for a job well done

BMC SOFTWARE'S fourth annual Best Practices in Enterprise Management Awards Program culminated at the Assurance 2000 (A2K) user group with the announcement of this year's winners. The A2K conference brings IT professionals from around the world together to learn how to optimize BMC Software solutions to get the most from their own people and systems. In addition, this conference gives participants a first look at what the company is planning for the future.

And the winner is

The awards ceremony was held on May 22, 2000 at the Venetian Hotel in Las Vegas, along with the A2K conference. This highly coveted award has become an industry hallmark for recognizing exceptional IT achievements. This year's Gold Award winners are Mirage Resorts, Incorporated and Worldspan. Silver Award winners include Bank of America, The Burlington Northern and Santa Fe Railway Company and Pacific Gas & Electric.

This year's program was a great success and competition was intense with entries coming in from around the world. Industry experts from The Butler Group, Enswers.com, Enterprise Management Associates, GartnerGroup, Giga Information Group, Hurwitz Group, and International Data Corp. carefully reviewed the entries and selected the Best Practices in Enterprise Management winners. Each entrant was asked to communicate how its organization has linked its enterprise management strategy to business objectives, including measurable achievements. Entries were reviewed and judged on critical success factors such as the planning and evaluation process, the scale, creativity and quality of the implementation and the demonstrable results achieved to date.

"The fourth annual Best Practices in Enterprise Management Awards Program truly reflects the outstanding accomplishments of BMC Software's customers," said Wayne Morris, vice president of corporate marketing, BMC Software, Inc. "We are delighted to see that these IT groups are maintaining such a high level of service for their respective organizations. Not only does this award program reflect that, but it also validates their commitment to achieve the critical success factors that are so necessary in today's strategic IT environments." Participants highlighted the true value and efficiency of implementing Enterprise Management strategies and tying them to business processes using BMC Software solutions.

Max Watson, CEO
BMC Software, Inc.

About BMC Software

One of the world's largest independent software vendors, BMC Software delivers the most comprehensive e-business systems management software with the fastest guaranteed implementation. This Service Assurance™ strategy enhances the availability, performance and recoverability of companies' business-critical applications. Companies can use this management methodology to demonstrate their ability to deliver optimal service to their customers and partners by joining BMC Software OnSite™, a certification program that includes solution implementation and regular HealthChecks performed by BMC Software Professional Services. BMC Software is a Forbes 500 company and a member of the S&P 500, with fiscal year 2000 revenues exceeding $1.7 billion.

The company is headquartered in Houston, Texas, with offices worldwide.

Visit us at www.bmc.com ✤

Judging the Contest

Industry experts carefully reviewed the entries and selected the **BMC Software Best Practices in Enterprise Management winners for 2000.** The distinguished panel of judges included:

Gary Cooper
IT Research Analyst
The Butler Group

Steve Foote
President and CEO
Enswers.com

Patrick Dryden
Industry Analyst
Giga Information Group

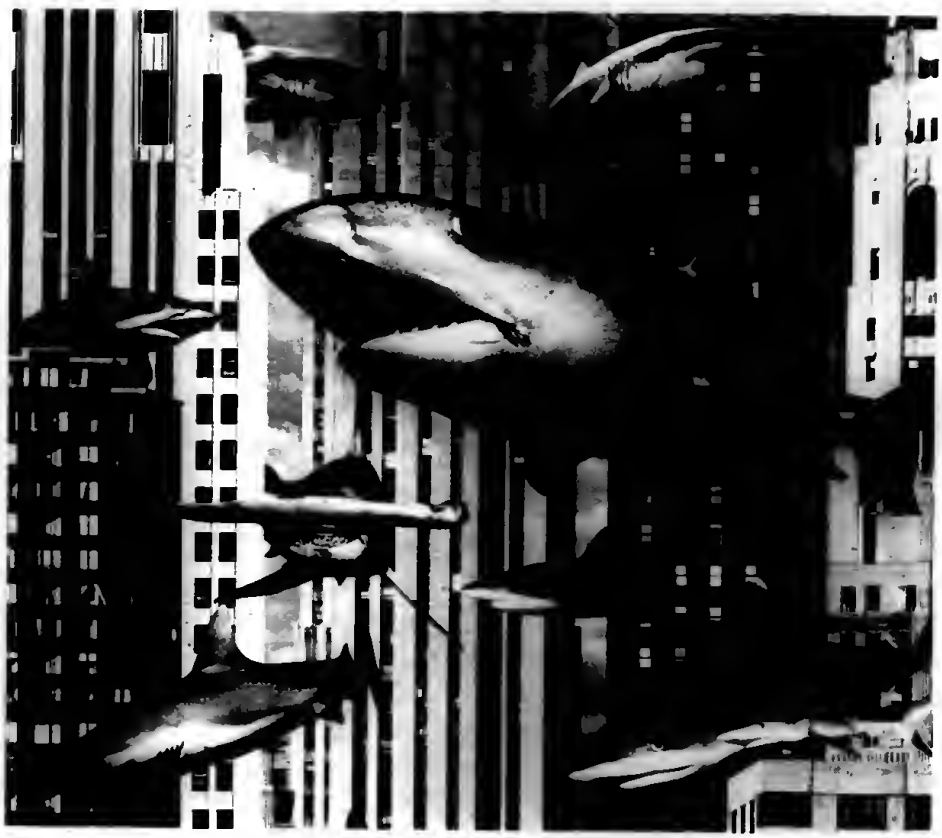
Paul Mason
Vice President
International Data Corp.

Ray Paquet
Vice President/
Research Director
GartnerGroup

Rich Ptak
Vice President Systems and Applications Management
Hurwitz Group

Rick Sturm
President
Enterprise Management Associates

[www.bmc.com]



THE CONSTANT AND *rapid* CHANGES IN TECHNOLOGY HAVE LEFT ROOM FOR ONLY TWO KINOS OF E-BUSINESSES: THE QUICK AND THE DEAO.

It's no longer business as usual. For you, or your competition. Which is why nearly all the Fortune 500® rely on us to survive–and thrive. We are BMC Software. The world's leading provider of systems management solutions. Software that keeps your business-critical applications up and running around the clock. We offer the fastest implementation of the most comprehensive e-business management systems. And our exclusive OnSite™ program is your seal of assurance that your e-business will be online, all the time. For more detailed information, visit us at www.bmc.com. We'll be there. We're always there.

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going to need to build support for the changes with a lot of internal constituents. A dog-and-pony show about the results of an external evaluation is an excellent forum for internal education and politicking.

Getting the most out of a major Web site evaluation is a little like getting the most out of a market study, which is my company's business. If you act on the results, the cost of the test or study can be insignificant compared to the value of the information. If you don't, you've blown the cost of the study.

ERNEST J. WILSON III

Take next steps to narrow the global IT gulf

LEADERS OF THE world's eight richest nations met in Japan recently and pledged to help close the "digital divide" separating them from the rest of the world's 3 billion or 4 billion unwired and unconnected people. July's G8 summit produced good rhetorical commitments; but will they really help close the gap with the "information poor"?

To their credit, the leading economic powers agreed to take up this thorny, yet slightly obscure issue. The White House even convened a private-sector advisory group — of which I was a member — to come up with ideas for the president to take to the summit.

Research done late last year by a colleague and me pinpointed the seriousness of this digital divide. We found that rich countries are increasing their use of IT by a healthy 23% annually. Developing nations grew, too — but only by 18%. This five-point gap is substantial. It's widening, leaving worrisome implications for international trade and further global economic expansion.

ERNEST J. WILSON III directs the Center for International Development and Conflict Management at the University of Maryland in College Park. Contact him at ewilson@bsos.umd.edu.

What did the rich nations do in Japan to meet these challenges? Japan pledged $15 billion to the cause (though it isn't clear how it will be spent). The U.S. presented a "call to action" with a list of new programs and investments that corporations are taking to narrow the divide, along with initiatives by federal agencies such as the Overseas Private Investment Corp., which promotes trade.

But especially interesting were the collective commitments of the G8, including an agreement to create a "Digital Opportunities Task Force" (or "Dot.force") that would share information with developing countries on how to solve IT problems.

As a member of the White House group, I was struck by the insistence of corporate representatives to substitute the more upbeat term *digital opportunity* for *digital divide*.

Maybe they're right. But in Latin America, there's only one PC for every five households. And 98% of Latin Americans and 99.5% of Africans are unconnected to the Internet. Half of the world has never made a telephone call. And very few people are trained in network management and other modern IT skills.

And the gap is still growing. Seizing the genuine commercial opportunities available in poor countries will require that scarcest of global resources: top-level commitment and leadership in public-private partnerships. Market reform will take us much of the way toward a more equitable knowledge society, but more steps — such as the following — are needed so that these commitments can bring real benefits to computer and Internet users in the developing world.

- The next president must assign a team to follow through on U.S. commitments.
- The new administration must maintain the partnerships begun involving the White House, leading IT companies and relevant nongovernmental organizations.
- The Dot.force should pick one or two concrete projects that narrow the gap, and make them work well before embarking on others.
- A clearinghouse (possibly a nonprofit, global-based knowledge "society") should be established to allow IT enthusiasts from less-developed countries to learn best practices.

Unless these steps are taken, the U.S. and the rest of the G8 will have missed a rare and tremendous opportunity to do good while doing well. All that's required is leadership.

READERS' LETTERS

IT auditors need more than courses

SUGGESTING that IT auditors take courses to stay current with technology is a simplistic solution to a complex problem ["The IT 'Police,'" Business, July 17]. An IT auditor can't be expert in all technologies he may encounter, and trying to do so creates more problems, like providing false assurance.

The auditor must decide whether the primary goal is to improve business processes or write reports for senior management and regulators. If it is improvement, acting as the IT police is counterproductive. A far better process would be what I call "coactive auditing," a partnering approach that focuses directly on improvement.

John D. Tongren
Managing partner
Tongren & Associates
Phoenix

Analyst off the mark

IN YOUR Aug. 14 issue, analyst Joseph Marino implies that HNC Software has given VeriSign preferential pricing on eFalcon and says HNC's other distribution partners should "renegotiate their contracts" ["VeriSign Launches Flat-Fee Fraud-Screening Service," News].

Mr. Marino's remarks are pure conjecture and, in fact, incorrect. He has no knowledge of HNC's list pricing for its partners and has apparently leapt to his own conclusions about the reasons for VeriSign's pricing. His unsophisticated view that VeriSign's prices to its customers are necessarily cost-plus-based would be amusing if *Computerworld*'s publishing of his uninformed remarks weren't potentially damaging to HNC's relationship with its partners.

Patricia D. Campbell
Executive director, marketing
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MCSEs and MCPs have time to recertify

THE ARTICLE "Microsoft Under the Win 2k Gun" [Page One, Aug. 7] was somewhat misleading. It is true that Microsoft will be discontinuing the Windows NT 4.0 certification track as of Dec. 31, 2000. I agree that this is a bit premature and that Microsoft is probably using this to push users and companies toward Windows 2000. The test expirations will make it impossible to get a new NT 4 certification after the end of the year.

However, NT 4 certifications do not expire until Dec. 31, 2001. Current Microsoft Certified Professionals and Microsoft Certified Systems Engineers have until then to recertify on Windows 2000. Also — based on my own experience with several major companies — it is most often the employer, not the employee, who pays for the classes and certification tests.

Brian Rapp, MCSE
Network consultant
Xerox Connect

The need for PCs

MARK HALL suggested that a Pentium II is sufficient in an office today ["Moore's Buying Cycle," News Opinion, July 31]. That is probably true for dedicated applications such as data entry. But for general-purpose machines, I don't think so.

Fifteen years ago, one could use a spreadsheet on a 2-MHz machine with 512KB of memory, a 10MB hard disk and a 720KB floppy. No chance of that today; you couldn't even load today's spreadsheets. Applications are growing with their own form of Moore's Law, and I see no evidence of abatement in that growth.

A more insidious problem is the changing architecture of applications, along with operating system support for those changes. Interoperability is becoming much more commonplace, but the infrastructure for that interoperability sucks up CPU cycles relentlessly. A corollary is that GUIs, starting at the desktop, are becoming much more sophisticated, and that also sucks up cycles in the CPU.

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COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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BILL LABERIS

The e-business frame of mind

YOU'VE HAD ABSOLUTELY no shortage of advice and information detailing what you need to do to prepare your IT organization for the e-business era. But what about preparing your own psyche for the sea changes e-business will usher in?

Those changes are radical departures from the time-tested ways CIOs have thought about their organizations, their staffs and their whole approach to their jobs. History has shown repeatedly that when managers aren't fully prepared for — if not accepting of — major change, they tend tn resist it. Recall the fortresslike resistance of many IT managers of the 1980s to accepting the PC as a serious business tool. You may also recall that many of those same managers were eventually replaced.

BILL LABERIS is a consultant in Holliston, Mass., and former editor in chief of *Computerworld*. Contact him at [illegible]

Preparing your psycbe for e-business is far more subtle than acknowledgtng the validity of a vital piece of computer hardware but no less important. You will have to do a complete about-face in thinking about some things and do so in Internet time.

For IT people, who tend to be among the more conservative organizational people, this psyche adjustment may not come easily. Here are three psyche-altering areas to consider:

■ **Who are your lead vendors?** For at least 10 years, most IT managers have listed Microsoft, IBM, Oracle and Sun when asked who their most important vendors are. They have derived comfort from long-standing relationships with their sales, support and development staffs. In the e-business world, your list of mission-critical vendors will include the likes of BroadVision, Commerce One, Ariba and Exodus — companies that will use the products of the IBMs and Microsofts to deliver packaged e-business solutions. You'll need to invest in these e-business vendors a level of trust that you developed over a decade or more with the current key vendors. Only you'll have months, not years, to build that trust.

■ **Buy vs. build:** Pressure-packed directives from senior management to deploy e-business systems, coupled with a continuing and strangling skills crunch, have worsened the deadline-driven pressure cooker in many IT organizations. Meanwhile, within the vendor commonity, a new generation of service companies such as those listed above, as well as application service providers, network service providers and even storage service providers, offer CIOs increasing opportunities to purchase or lease the user services that IT has built over the past 25 years. Embracing the concept of information as a utility may be among the most difficult mental shifts for IT managers, as well as the most vital for the rapid deployment of e-business applications.

■ **From Scrooge to Trump:** Perhaps because so many senior executives have continued to think of IT as a cost center, IT budgets have historically been tight, making CIOs tight-minded when it comes to spending. Gartner Group estimates that the top U.S. companies today spend an average of 3.5% of revenue on IT. But within five years, Gartner maintains, spending will top 10% as companies build and deploy their e-business infrastructures. The simple fact is that the levels of spending that supported business processes in the years just before the e-business explosion won't support e-business processes.

While moving from tightwad to spendthrift may sound enticing, rapid-fire IT budget increases will attract more attention to IT activities and outcomes. Are you ready for life under a far more powerful microscope? ◗

TOM REILLY

Toysmart case can set bar for online privacy

WE'RE STILL AT THE DAWN of the information revolution. Every day brings us new online opportunities. And with those opportunities, we're faced with new and often demanding challenges.

One of the most demanding challenges created by the Electronic Age is the preservation of personal privacy. A case my office is now handling illustrates the emerging tension between e-commerce and privacy.

TOM REILLY is attorney general for the Commonwealth of Massachusetts.

Toysmart.com, an online toy store in Waltham, Mass., posted on its Web site a very clear privacy policy that stated it would *never* share customer information with third parties. But after filing for bankruptcy protection, Toysmart sought permission to sell all assets, including a customer list that contained not only consumers' names, addresses, billing information and credit-card numbers, but also their browsing and purchasing histories.

On behalf of my state and 43 others, plus the District of Columbia and two territories, my office registered an objection to the sale of customer information with the U.S. Bankruptcy Court for Massachusetts. We argued that given Toysmart's explicit privacy policy, the sale of consumers' personal information would be deceptive. Because Toysmart also collected "click-stream" data — information about consumers' buying and browsing practices on the site — we argued that the sale of such information, which consumers could reasonably expect to remain private, would also be unfair. The court has yet to rule on that issue, but for now, the customer list won't be sold.

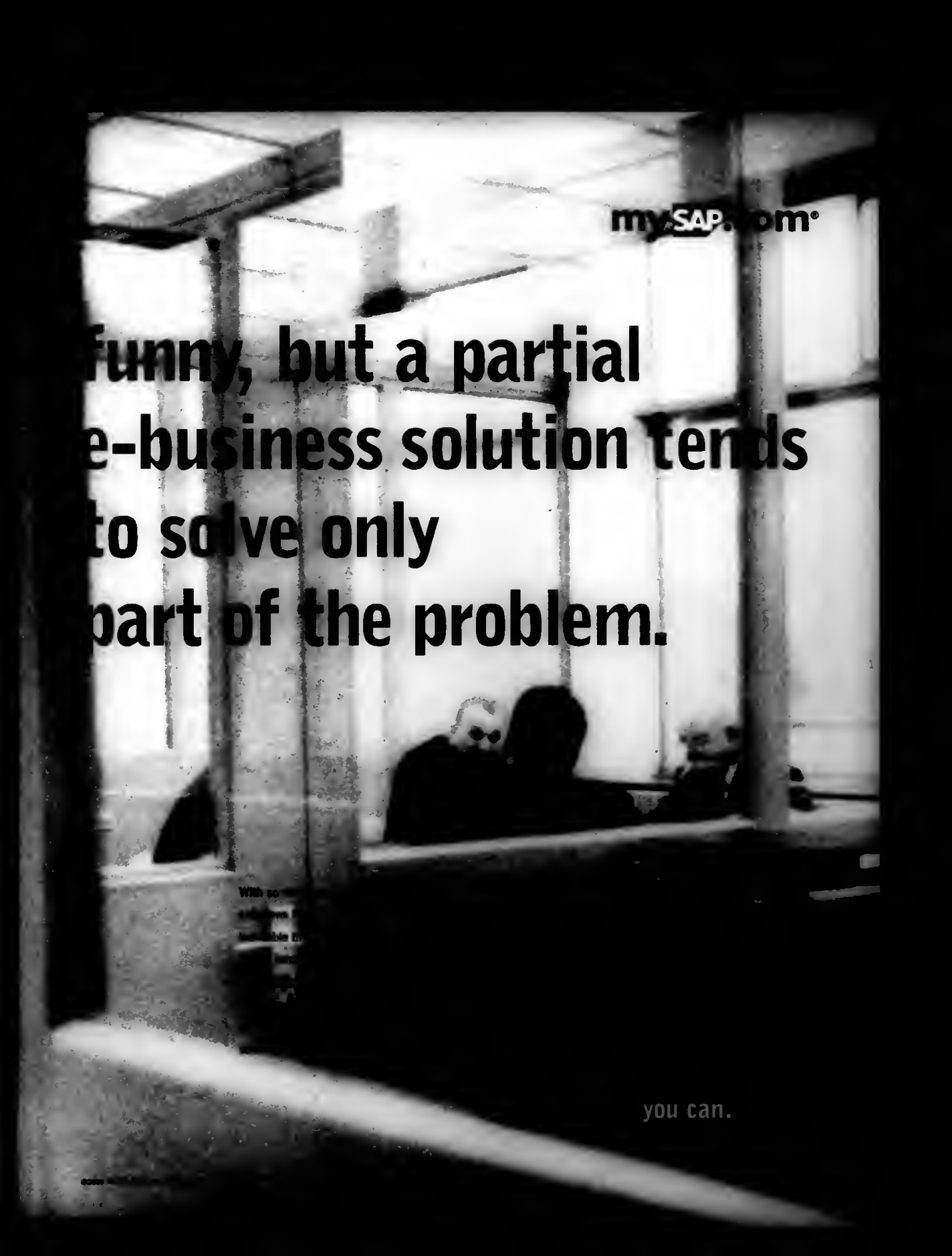
Anyone who nses the Internet should be able to do so freely. Instead, we find ourselves in a world where personal information collected online has become a commodity. But a promise is a promise, even in cyberspace. The bottom line is that e-commerce won't succeed if it becomes a mistrusted or uncertain sbopping venue. The Toysmart case is one of the first to raise these issues in court. And with many otber e-commerce companies having similarly troubled finances, it certainly won't be the last. That gives us every reason to stand firm and demand that we hold these companies to the highest possible standards when it comes to privacy rights on tbe Internet.

A settlement of this case, proposed by the Federal Trade Commission (FTC) and since struck down by the bankruptcy court, doesn't meet this "highest possible standard." The FTC proposal would allow Toysmart's customer list to be sold but only to a buyer in a related market. Another restriction is that the purchaser must keep the list confidential.

Massachusetts and tbe other plaintiffs objecting to tbe proposed settlement disagree. The deal with the FTC simply doesn't go far enough to protect consumers' rights and reasonable expectations. Consumers must receive notice that their personal information will be sold, and Toysmart should receive their consent (opt-in) before any sale is consummated. Toysmart made an explicit promise to its customers, and neither it nor anyone standing in its place has the right to break that promise now.

Consumers on the Internet must be able to expect that personal information, particularly click-stream data, will remain private except when they've given their informed consent to disclosure. Without informed consent, the transfer of personal information may constitute an unfair or deceptive act or practice.

The Toysmart matter is a potentially groundbreaking case. Will the court enforce a promise of privacy? Will it recognize consumers' expectations in personal information and click-stream data? If it does, it will be upholding settled legal principles in a new context, protecting the public's reasonable expectations and enforcing a promise on which Toysmart's customers justifiably relied. Such a result will go a long way to enhance consumer confidence that Internet companies are willing to safeguard information that in other settings would unquestionably remain private. And enhanced consumer confidence is good not only for the public, but also for the continued development of e-commerce. ◗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BUSINESS

CRM ON A SHOESTRING

The demand for Web-based customer relationship management software from small and medium-size businesses has sparked a market for services that cost less than $50 per month per user. While such services aren't likely to attract large companies, they are appealing to midsize companies whose sales forces are looking for quick access to customer data, in the office or from the road. ▸ 40

DRIVING HOME ONLINE DEALS

The number of car dealers that do business on the Web has jumped almost 10% in the past year, according to a recent survey by the National Automobile Dealers Association. But as more dealers and manufacturers team up for joint Web initiatives, odds are that solo dealers won't be able to compete — even with the most sophisticated offerings. ▸ 41

KNOWLEDGE AND SKANDIA'S STORY

Skandia Insurance may be world-renowned for its knowledge management practices and methodology, writes Paul A. Strassmann, but an analysis of some key financial metrics tells a different story. ▸ 42

LABORIOUS LABOR DAY

The information technology folks at Weber-Stephen Products, the maker of Weber grills, have been gearing up for Labor Day the way most companies do for Christmas. Find out from the vice president of IT what it's like to work there the rest of the year. ▸ 42

R-E-S-P-E-C-T

"Communicate, train, empower" — advice straight from the rank-and-file on how to hang on to your employees. Companies bend over backward to keep staff, offering outrageous perks and high salaries, but it's not uncommon for a Fortune 500 company to have more than 100 open IT positions at any given time. The trick, say respondents to a recent *Computerworld* survey, is simple: Just show your staff some respect. ▸ 46

SALARY SCENE

IT salaries increased by double digits last year, as companies went the extra mile to attract and retain skilled workers in a market that continues to be hot and where IT professionals have become wiser and bolder in their demands. ▸ 46

WISE DEALINGS

Frustrated by IT colleagues who don't bother negotiating good business deals when buying expensive products and services? Joe Auer recommends reminding IT staffers that successful projects — not to mention their careers — could depend on good business deals. ▸ 56

MORE
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JOHN SOBOLEWSKI

THE DRAWBACKS OF DIVESTITURE

WHEN FORTUNE 1,000 COMPANIES spin off or sell a business unit, information technology leaders rarely have a seat at the planning table. But that's a big mistake, warn analysts and practitioners. Management needs to work through dicey issues such as parsing out IT services, reworking software licensing agreements and giving IT staffers incentives to support an entity that's being cast off.

44

Companies Turn To Low-Cost CRM

Web-based customer management packages cost $50 or less per user monthly

BY MATT HAMBLEN

EARTHCARS.COM Inc., which builds Web sites for car dealers nationwide, relies on a service that lets its sales and support personnel consult a complete online database with information on all of its 600 customers' accounts from a desktop or wireless laptop or a handheld.

And the service, from Agillion Inc. in Austin, Texas, costs only $29.95 per user each month.

Agillion is among a group of companies — including UpShot.com in Mountain View, Calif., and Salesforce.com Inc. in San Francisco — that offer customer relationship management (CRM) and related software services over the Web at less than $50 per user per month. The infant CRM Web-based services market provides a means for small and medium-size companies to avoid the high costs of installing CRM software on-site, said analysts.

"The key advantage to the Agillion service is being in sync 24 hours a day with customers and staff," said Mark Bonfigli, chief operating officer at Burlington, Vt.-based Earthcars.com. "I'll get contacted at 10 p.m. when I'm not in front of a computer, and I need data. We're in a period of hypergrowth, so this is valuable."

> We're in a period of hypergrowth, so this is valuable.
>
> MARK BONFIGLI, COO, EARTHCARS.COM INC.

If a customer wants to add a new feature to a Web site, for example, Bonfigli said he or his associates can quickly collaborate on the technical demands on the customer's Web site and provide a price quote almost immediately.

Through Agillion's service, Earthcars.com provides a Web page for each customer to consult with questions or to track problems and responses, Bonfigli said.

All the data on Earthcars' customers is kept on Agillion's secure Oracle8i server, which is accessed by Earthcars and its customers via a Web interface.

Earthcars replaced an internal CRM software package from Microsoft Corp. about six months ago to move to the Agillion service, which Bonfigli said is less expensive to maintain than an in-house system. In the past month, the company began accessing the data wirelessly, Bonfigli said.

Arabianbiz.com LLC in Dubai, United Arab Emirates, also uses Agillion's service to keep readers informed about business opportunities in the Arab world, said Asghar Shah, a director at Arabianbiz.com.

Agillion's service gives Arabianbiz.com a means of offering customized information to each user on a personal page. As a means of communication, it gives Shah and his site's users the ability to discuss business opportunities over the Web instead of using fax, phone or separate e-mail, Shah said.

"The service is much faster and the interface much quicker than other products we tried," Shah said.

Despite his positive view, Shah said he doesn't trust the security of having his data on a server owned and operated by Agillion. "I don't put my most sensitive business plans on there or financial numbers," Shah said.

But analysts described Agillion's security as top-rate, adding that it shouldn't prevent a business from signing up for the service. Agillion uses Secure Socket Layer protection, and it is "not really insecure," said Ray Boggs, an analyst at International Data Group in Framingham, Mass.

Analyst Sheryl Kingstone at The Yankee Group in Boston said large companies probably won't use Agillion or other Web-based services because they have the information technology staff to install CRM or other applications.

MARK BONFIGLI, chief operating officer at Earthcars.com, uses the Agillion service, which allows him 24-hour access to 600 accounts

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ASPs Find Help Selling Services

Traditional channel aims for customers

BY MARK HALL

More application service providers (ASP) are flying in the face of the one-to-one mantra of Internet supporters.

They're using value-added resellers (VAR) as middlemen to attract information technology managers who already use VARs to handle administrative services or application integration.

ASP in a Box

Last month, Allegrix Inc. unveiled its "ASP in a Box" program exclusively for VARs. The program was designed to make it easier for VARs to resell ASP services, using Allegrix as a host for applications supplied by VARs or their clients.

However, according to Chris

U.S. Car Dealers Speed Into Online Sales Market

But many eclipsed by dealer/maker megasites

BY LEE COPELAND

The number of U.S. car dealers with Web sites has grown from 74% to 83% in the past year, according to a survey of 2,500 dealers released Aug. 25 by the National Automobile Dealers Association (NADA).

But even as these dealers report increased sales from their online storefronts, analysts said more technically sophisticated dot-com initiatives jointly spearheaded in the past few weeks by automakers and dealers may eclipse dealers' solo efforts.

Until recently, automakers and dealers ran disparate Internet initiatives in a battle to control access to customers. But as online vehicle brokers have gained credibility with consumers, unprecedented joint efforts have sprung up between car manufacturers and their retail dealer channels, analysts said.

Last week, Ford Motor Co. unveiled FordDirect.com, an online company owned 80% by dealers and 20% by the Dearborn, Mich.-based automaker. Detroit-based General Motors Corp. announced a similar dot-com joint venture, splitting the equity stake down the middle with participating dealers.

Both dot-com ventures plan to build megasites where consumers can configure, price and purchase vehicles through participating dealers. Ford and GM expect thousands of dealers to participate in and help fund the dot-com initiative.

A comprehensive megasite with sophisticated functionality that's backed by the deep pockets of automakers may eclipse individually created dealer Web sites, said Adam Weiner, an analyst at Gomez Advisors Inc. in Lincoln, Mass. "Most dealer sites are more marketing- and promotions-oriented than transactional, and they'll stay that way," he said. "By the time they spend the time and money to improve their sites, the manufacturers will have already built the type of sites consumers really want."

Still, the survey conducted by NADA, a nonprofit dealer lobbying, mediation and marketing service organization in McLean, Va., found that 98% of dealers' Web sites include sophisticated interactive content, such as that allowing car shoppers to send e-mail, order vehicles or obtain financing online. For example, 82% give car shoppers access to vehicle inventories, 56% provide the manufacturer's suggested retail price on vehicles and 52% give car owners the ability to schedule maintenance appointments online.

CAR DEALERS' Web sites are now being jointly spearheaded by manufacturers

Rob Robas, the parts manager at Raleigh, N.C.-based Thompson Cadillac-Oldsmobile Inc., said his company gets some vehicle and repair services sales through its Web site but that he isn't convinced it's worth the cost of maintaining the Web site.

"We have worked with a lot of providers to get [our Web site] working properly, and we're not sure whether we're getting a return on our investment," he said.

The NADA survey also showed early investments in Web sites paid off for dealers. Dealerships that have operated Web sites since 1995 generate an average of 13 new vehicle sales per month on their sites; dealers that launched Web sites last year generate an average of five sales per month. Dealers sell 750 cars per year on average at an average of $24,450 each, NADA officials said.

Middleman Muddle

Do you need a VAR to run your ASP?

Clabaugh, CEO of Allegrix in Santa Clara, Calif., VARs need to be taught about things such as service-level agreements expected by IT shops that buy outsourced services.

The ASP in a Box program includes a menu-driven cost-benefit application that, for example, helps users determine whether persistent staff shortages warrant off-loading application support to an ASP. Labor-intensive administrative tasks such as controlling what applications end users can launch oo their PCs and maintaining network directories are ideal for outsourcing, said analyst Garth Gilmour at SK Consulting, the San Jose-based arm of IT consultant CBIZ in Cleveland.

Gilmour said SK Consulting has begun to offer these services through Kaseya, an ASP in Milpitas, Calif.

"A lot of good IT talent has gone to dot-coms and elsewhere," he said. That leaves a big hole in the IT department, which Gilmour hopes his desktop management application can fill.

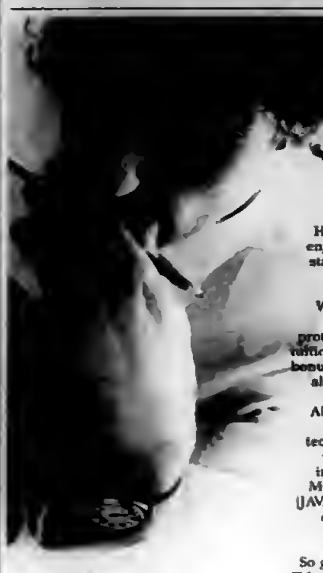
Kaseya uses a client-based agent to communicate with server software located at the VAR's data center. Kaseya's central server keeps all the VAR servers current on software upgrades and patches.

Sophisticated ASP service like Kaseya's lets Gilmour increase his consulting operations and save money for his customers by making his services more efficient.

Gilmour said the labor pressure has pushed hourly rates from $125 to $175 in the past five years.

Caryn Gillooly, an analyst at Hurwitz Group Inc. in Framingham, Mass., said ASPs are smart to use VARs, especially for IT administrative services. "It's a great idea because the VAR has already established a relationship with the user," she said.

Benjamin Sperling, chief operating officer at Application Park Inc., an ASP in San Francisco that also uses VARs, said for sophisticated IT shops, "ASPs and the Internet do cut out the intermediary. But not always. There is always somebody who needs hand-holding."



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U.S. Car Dealers Speed Into Online Sales Market

But many eclipsed by dealer/maker megasites

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Middleman Muddle

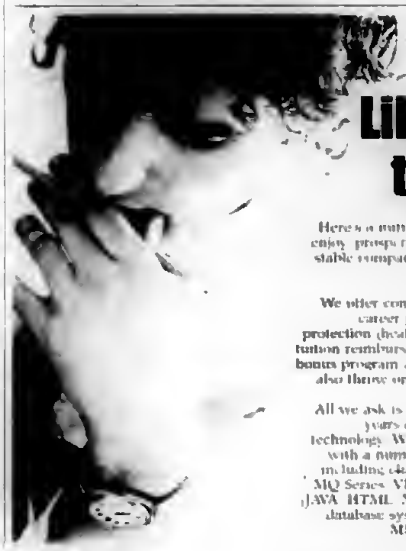
Do you need a VAR to run your ASP?

PLUSES

- Established relationship with VAR
- VAR can manage multiple ASPs
- Time savings
- VAR is local when geography matters

MINUSES

- Can add to ASP cost
- VAR can't support all ASP services
- VARs need ASP training



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WORKSTYLES

What It's Like to Work at . . . Weber, the Grill Maker

Interviewee: Bill Krieger, vice president of information services
Company: Weber-Stephen Products Co., a manufacturer of barbecue grills
Location: Palatine, Ill.
Tenure: Since 1979
Number of information technology employees: 14
Number of employees (end users): About 500 within Weber, plus manufacturers' representatives nationwide
Major IT initiatives: Getting the representatives online, bringing up a corporate intranet and working on the corporate Web site. "Weber is also evaluating e-commerce as a means of selling low-volume items and other merchandise that its retailers don't carry."
Labor Day is a big day for grilling. What does it mean for Weber's IT department? "All summer, we support a 24-hour 800 line – the Grill Out line – and it closes on Labor Day. Customers can call in and ask real-time cooking questions about recipes or why their turkey seems too rare or what to do when a thunderstorm puts out their charcoal grill.

After Labor Day is when we release software upgrades and prepare for the physical inventory that happens in late September. This is a time to sit back, see what the demands of the previous season were and get ourselves ready for the next coming season."
IT training plans: "We work across so many different areas that training plans are handled on an individual basis. I have someone doing Java training, someone doing Web design training and someone doing FrontPage training so they can teach users to write their own Web pages."
Bonus programs: "We have a companywide program called EVA [Extra Value-Added], which is an incentive for people to go out there and work for the betterment of the company, make sure our customers are well-serviced and hold costs down. We give out bonuses based on how well the company is doing on the EVA plan, and we have an IS-specific EVA plan."
Dress code: "Slacks and a golf shirt. And we have dress-down Fridays, when we can wear blue jeans. The dress code was a big thing for me when I came here in '79 because I came from a three-piece-suit environment. Even on Saturdays, we were expected to wear a tie. So here, I wore a tie my first three days on the job, and the company chairman [and founder], George Stephen, said, 'Willy, if you come in one more day with that tie, I'll cut it off.' "
Must people carry beepers? Cell phones? "Most of our critical, on-call people have Nextel phones with the two-way radio feature. And I encourage them to keep those on their person at all times. The cost of it is nowhere near the cost of a user who can't get their problem resolved. After all, the name of our department is information services. We have to be there to service the whole company or we're falling down on the job, and of story."
Percentage of staff that telecommutes on a given day: "None."
Office decor: "The outside offices have great color shots of the history of Weber and different grills and how manufacturing works."
On-site day care or other amenities? "Not right now."
Free refreshments: Coffee and tea. "Also, we have a chef who tests recipes on our grills, and that's a fun time here because you can smell what's cooking all throughout the building. Then we get to sample the results, and it's a feeding frenzy – like a shark attack when they sense blood in the water."
Favorite item in candy dish: M&Ms.
The one thing everyone complains about: "I really don't know, because we just got brand-new offices, we've got the staff we need to handle the job in a professional manner and any requests I've ever made to the president of the company for new equipment or personnel, he says, 'Go get it.' "
Would employees feel comfortable e-mailing CEO James Stephen? "Definitely."

– Leslie Goff (lgoff@ix.netcom.com)

PAUL A. STRASSMANN

Behind the hype

EVERYTHING I'VE READ about "knowledge capital" or "knowledge management" has devoted inordinate attention to the accomplishments, methods and reporting practices of Skandia Insurance Co.

What distinguishes the Swedish firm [Business, March 27] is its approach to measuring its intellectual capital. Its techniques have been featured in its annual reports since 1994, with details unmatched by any other firm. Skandia's image as a proponent of innovative ideas has been reinforced by extensive publishing, public speaking and promotions. This constitutes the centerpiece of its efforts to create the image that it's one of the most sophisticated firms in advancing new concepts of how to increase employee productivity.

To understand what Skandia is doing requires an immersion in philosophies, metrics and classifications. One must become acquainted with the fine distinctions of how to partition intellectual capital into human capital, structural capital, organizational capital, customer capital, innovation capital and process capital. To steer through such subtleties, you must become proficient in using the Skandia Navigator, the Skandia value scheme, flow-based models (a PC software package called Dolphin) and, most important, the Skandia Intellectual Capital Index, which aggregates more than 100 variables into groupings such as the relationship capital index, the human capital index, the infrastructure capital index and the innovation capital index. A sampling of this collection would lead you to discover just about every conceivable metric, such as employee turnover, average years of service, change in the company's IT literacy, PCs per employee and IT expense per employee.

All the inputs are then passed through a series of equations that establish such relationships as: *Human Capital Base Value = Net Present Value of Five Years' Payroll Costs.*

Unfortunately, how all this relates to company success isn't explicit.

After having satisfied myself with Skandia's intellectual concepts, I became curious about their effectiveness. Does all of this inspirational thinking produce superior results?

One way of judging a firm's performance is to compare its financial record with those of its competitors. That's easy; analyzing Skandia's size, revenue and industrial classification produced a list of 19 look-alike firms in five other countries. I settled on return on shareholder equity (ROE) as the measure for assessing the productivity of people and how well their talents were deployed for shareholders' benefit.

The top-ranking firm was German insurer Aachener und Muenchener, with a 1998 ROE of 48.4%. At the bottom was Victoria Holdings, also in Germany, with 7.6%. Skandia ranked second from the bottom, with a meager 8.2% — barely above the cost of capital. This isn't an impressive performance for a firm that boasts about its leadership.

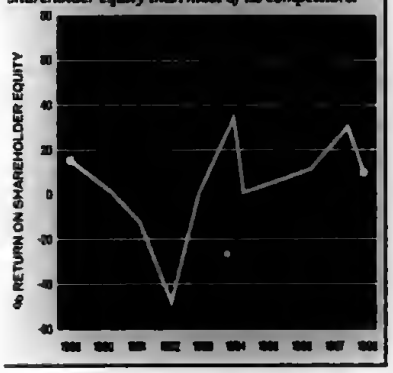
I then took a closer look at Skandia's history to see if 1998 stood out as a bad year. It didn't. (See chart.) Compared with half its peer group, Skandia has consistently underperformed in delivering superior results.

Many firms let their public relations enthusiasm exceed their accomplishments. The stock market often rewards this enthusiasm with share valuations that are higher than what their plodding-but-profitable competitors get. But in due course, the shortfalls are recognized and the firms are penalized when their market worth nosedives.

There's no substitute for delivering above-average financial results as proof of competitive excellence. ◗

Sizing Up Skandia

Despite the hype about its management of intellectual capital, Skandia has had a lower return on shareholder equity than most of its competitors.



Strassmann (paul@strassmann.com) worked for a company that for many years enjoyed exceptional stock-market favor largely based on superb publicity.

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JIM HATCH has had to consolidate data centers 28 times in his life. Last November, he finally had to tear one apart when Pactiv Corp., where he is the CIO, split off from Tenneco Automotive Inc.

Pactiv makes Hefty trasb bags. It has no connection to Tenneco, which makes automotive and emission controls products. That's why the two Lake Forest, Ill.-based companies were split, Hatcb says.

But what made this particular divestiture particularly ironic was that all the information technology services for the two business units had been integrated only three years earlier. "A lot of the folks who struggled to put it together had to turn it around and pull it apart," Hatch says.

Compared with bringing two companies together, splitting them apart is a "real challenge," he says.

"During the '90s, there was a big move toward shared services," says Eileen Birge, a vice president of research at The Concours Group Inc. in Kingswood, Texas. The goal was to save money, but sharing services could be very expensive during a divestiture. Some costs are obvious — the unit either continues receiving services from tbe parent company, outsources or builds its own IT department.

But there are other matters that have to be dealt with, Birge says. including personnel issues such as retention or transfer of IT staff, and systems issues such as software licenses. These licenses are a particular problem for Hatch because the process still isn't complete, a year after the divestiture was initiated.

"A few vendors are very opportunistic and attempt to use these occasions [divestitures] as revenue-generating opportunities," he says. "They like to slip in new terms and conditions that weren't part of the original agreement."

Another problem for Hatch is that his company is busy around the clock. There are only four hours during any week in which he can shut down systems. It's a real challenge to split up the data center without disrupting the business, he says: "You have to plan it very carefully."

Altogether, he spent four to five months planning a divestiture that was originally expected to take two years but will be finished ahead of schedule.

That planning was key to making it work, and it's important for every company that heads into a divestiture, analysts say. In fact, most companies don't plan enough.

"There are very few successful stories in terms of spin-offs because typically organizations do not deal witb it in a systematic way," says Michael Lloyd, a vice president at Chicago-based Aon Corp. "Often there will be a business plan and there will be an integration plan for a major merger or acquisition. But when there's a divestiture, there's usually only a business plan."

How GM Spun Off Delphi

One exception is General Motors Corp., which was aware of the challenges it faced when it decided to sell off its Delphi Automotive Systems Corp. unit in May last year.

GM created 17 task teams to carry out the divestiture, covering everything from buman resources to legal affairs to technology issues.

But Tim Reed, GM's information officer for finance, says that, in hindsight, be would have preferred to start the planning process earlier. "I don't think anyone's ever adequately prepared," he says.

Some of the thornier IT issues that had to be addressed included dividing the infrastructure, software and operating system licenses and service agreements, Reed says.

In some cases, Delphi created clones of GM systems. Some systems were migrated and some were shut down. Financial systems were a prime target for elimination because there had been a lot of duplication of effort as a result of mergers and acquisitions.

The challenges posed by divestitures can be compounded by the restructuring that occurs when businesses get involved in e-commerce. In such cases, IT becomes a core component, analysts say. "There's a big shift in how a lot of divestitures happen," says Doug Watters, a partner specializing in IT management services at New York-based PricewaterhouseCoopers. "The product is much more dependent on technology — or is technology — as opposed to cases where technology is just an underlying support capability in the divested business."

As a result, be says, divestitures have become much more complicated and need more involvement from the IT side, something that not every company going into a divestiture appreciates.

"It's very rare that CIOs are asked to sit at the table during divestiture discussions," says John Santos, an analyst at Stamford, Conn.-based Mets Group Inc.

The most immediate effect of a badly planned divestiture is the loss of IT staff.

"The good ones do leave first," Lloyd says. "They're

TIM REED, GM's information officer for finance, [illegible] anyone's ever ade[illegible] a divestiture

The difficulty of when corporatio

Bre

Is

splitting up IT functions is often underestimated
ns divest some of their units. By Maria Trombly

akin' Up Hard to Do

Divestiture Checklist

Consider the following items when determining if a divestiture is in your future:

- How tightly coupled are the organizations that are going to be split? If it's not a stand-alone business unit, how do you pull it out?
- Look at the spin-off's magnitude in terms of the effort, planning and funding required to make it happen.
- Analyze the impact on IT assets: software licensing agreements and operating, hardware and infrastructure costs. All may be higher because the new unit won't have the same buying leverage.
- Ensure that dedicated resources are in place on both sides, that the company doing the divestiture as well as the company doing the acquisition have the resources to facilitate a quick and rapid movement off the systems, migrating the data and so forth.
- Put a financial incentive system in place, such as a bonus structure, that makes it worthwhile for IT staffers to stay.

SOURCE: MICHAEL HANSAN, SENIOR MANAGER OF BUSINESS CONSULTING AT ARTHUR ANDERSEN LLP

hurt. They feel that they're not appreciated. And the demand is so great out there for technological skills that people with IT skills can get a job just like that."

Reed says GM dealt with that problem by keeping IT staffers well informed, which helped to keep IT attrition down. GM and Delphi used e-mail and staff meetings — as well as in-house telecasts — to communicate with employees during the divestiture, GM spokesman John Ahearne says.

When McGaw Park, Ill.-based Baxter Healthcare Corp. spun off Allegiance Corp., a medical products manufacturer, in 1996, Baxter CIO Kathy Brittain White says she was worried about losing key staffers who were working on a $100 million SAP project.

"We actually had not more turnover than average," White says. But keeping people focused and motivated was a challenge, she adds. What made it work, she says, was weekly communication and a retention plan that included "significant" bonuses.

White, now CIO at Dublin, Ohio-based Cardinal Health Inc., says that although she would have preferred not to have had to deal with the SAP project at the same time as the divestiture, the project may have actually helped. "Having an exciting project keeps people focused during a spin-off," she says. "I think in some cases, it made people believe that IT was going to continue to be important."

Yet when a divestiture isn't handled right, the staffing consequences can be dramatic. For example, Joshua Greenbaum, a partner at Berkeley, Calif.-based Enterprise Applications Consulting, recently watched a divested unit of a client, an electronics manufacturing company, lose its entire IT staff.

"They were both divested and moved," he says, and the stress was too much for the IT department. "All the IT staff walked to greener pastures."

Unwanted Stepchildren?

"Very often, and with divestitures in general, the divested company becomes a stepchild, and an unwanted one at that," Greenbaum adds. "There are often problems with competition — a divestiture may be forced by a regulatory environment and a divested company may be sold to a competitor."

IT employees in the divested company may also feel a loss of status.

"One day, you're running an IT center as part of a Global 100 company and the next day you're divested into a midsize company," Greenbaum says. "There's not a lot of glory in it, and by the time the divestiture is over, the IT staff is largely gone."

But there are exceptions.

For example, at New York-based Capital.com, an online capital marketplace spun off last December from Bethesda, Md.-based American Capital Strategies Ltd., the divestiture worked as a retention tool for IT staffers. "We've been able to offer people more opportunities," says Mark Opel, Capital.com's chief operating officer. "There were a few existing employees of American Capital Strategies that came over because they saw a better fit at the subsidiary."

That's not to say that the transition has been perfectly smooth.

"We're encountering all the typical problems that you have in establishing separate systems, in separating hardware, software and particularly people," he says. "You have to be patient. The key is to really work at developing a constructive relationship between the two companies because there will inevitably be conflicts over where people spend their time — at the parent company or in the new one. It's only by being open and addressing the conflicts that you're able to resolve them."

But despite all the problems divestitures can cause, there are some positives that can come out of a split.

"Despite the difficulties this also offers an opportunity to improve and refocus the IS function and the IT strategy," Santos says.

GIMME SOME RESPECT!

Too many IT managers keep throwing fat paychecks and lean lunches at their staffers in the hopes of keeping them. But IT pros we heard from say it's still respect they're lacking most.

By Holly Hubbard Preston

THINK YOU CAN DO A BETTER JOB HOLDING ONTO your information technology staff by upping salaries and sending out for a group lunch once a week?

That would sure help. But you'd better be addressing a different set of issues if you really want your retention strategy to work, according to the rank-and-file IT professiooals we heard from.

We recently asked for reader advice on what companies could do to keep their IT staffers from jumping ship when better offers come floating by.

We invited IT professionals to visit our Web site (*www.computerworld.com*) and post their best advice to IT managers.

We received more than 450 detailed replies, almost all of which shared three commoo themes, summed up in this quote from one of our readers: "Communicate, train, empower."

This is pretty basic stuff, folks. Yet too many IT managers are failing to get the message on what their staffers really want from them, as they continue to wrestle with double-digit job turnover.

It isn't uncommon for a Fortune 500 company to have more than 100 IT positions open at a time.

Joseph Krafinski, senior technical recruiter at Datacom Technology Group in New York, says he is working with a big-name e-commerce firm that has 200 job openings. Keep in mind, these aren't just new job slots that need filling but established ones vacated by employees who have moved on.

On average, Krafinski says he is filling jobs for his clients with people — such as high-level programmers and developers — who have held as many as three jobs in five years.

Why all the movement?

"A couple of years ago, people were moving for money. Now they are moving for employers who will take a personal interest in them," Krafinski says.

Based on what we heard from our readers, Krafinski has hit the nail on the head.

What Have They Done for Me Lately?

If we've heard it once, we've heard it a hundred times: IT professionals say they want to feel appreciated for the job they do, respected for their thoughts and ideas.

They say they need to feel they can grow at the place they work and that opportunities for training and specialization exist. And, no surprise, they say they want to feel well compensated for their efforts.

As one reader wrote, "Realize that it's not just salary that keeps people. Career development and training are important as well."

It makes one think that, in the push to fill slots, employers might be forgetting not only the faces, but also the attributes of the folks working right under their noses.

As another reader pointed out, "The market is going crazy for head count, but really what are [employers] doing to keep the employees they do have there?"

Training seminars. Updated computer systems. Personal days. Quarterly progress reports. These are tangible signs that an employer is taking an interest in an employee's professional development. And they can work.

"A lot of applicants feel the technology is moving faster than they can keep up. If they stay at a company [that doesn't offer training] for more than a year, they feel they will be left behind," Krafinski says.

Bottom line: Employees who feel left behind, often leave employers behind.

Making an employee feel like a valued part of a team, as one of our readers pointed out, often iovolves lots of little but meaningful gestures that add up to a big show of support, as the following excerpts from the messages they posted online indicate:

Train Me, Keep Me

"More training and better systems. My 6-year-old daughter has a better system than 10% of my users."

"Train us, we'll stay."

"Salary is one factor, but training and using the latest technologies are at the top of the list for keeping people."

"Realize the benefits of training, and do not treat training as something that an employee takes and leaves the company with."

"Train technical managers in business skills."

"Allow the 'dinosaurs' the opportunity to work on new technology to keep their skills marketable."

A Common Goal

"Everyone must work toward a goal. Present a goal for each employee to work toward. Give them ample reward as they achieve and become better citizens and contributing employees."

"Communicate to [IT staff] what the business goals are and why some of the rapid direction-changes are made."

"Quit reorganizing every time you turn around. People . . . aren't clear about company goals or the parameters of their own positions because the structure changes every few months."

A Little Respect, Lots of Loyalty

"Pay attention to their needs as people. Make sure you don't underpay, but not overworking is even more important."

"The CEO is always working on customer relationships. However, there is a major problem . . . with management skills that should be addressed."

"Companies have to trust their IT staff to do their jobs. Too many managers are trying to control details that should be left to the technical people. . . . IT management is very quick to punisb mistakes and rarely notices the absence of problems."

"Be flexible in work schedule. If I'm here every day for nine hours, and one day I oeed to take off and get my vehicle fixed or just want to take it, they should allow me."

"Find out what the person wants to work on, and give them a chance to do it instead of contracting out all the fun, new stuff."

Compensate and Appreciate

"Take a closer look at your veteran employees. These new rookies are a bunch of hackers . . . and they destroy systems and leave for another job. . . . Invest in your existing IT people who have proven themselves time and time again."

"Better pay, keep up with current . . . trends in IT [perks and benefits] and stop treating developers like unskilled resources."

"Empower, empower, empower. Reward a job well done! Promote from within . . . duh!"

"Accept the fact that paying average salaries will only retain average people. Paying larger salaries for new hires without adjusting current salaries will alienate your entire staff." ◗

Hubbard Preston is a freelance writer in St. Helena, Calif.

Boardwatch Magazine captured 4,512,463 measurements from 30 backbone providers to find out who's best.
Guess who came out on top?

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COMMUNICATIONS

IT salaries are rising by double digits again, as companies pander to workers who are much wiser about their worth and bolder with their demands. By Mary Brandel

TO PEER INTO THE HEART OF the information technology hiring scene today, look no further than Applied Signal Technology Inc. in Sunnyvale, Calif.

At this manufacturer of signal processing equipment, salaries rose by as much as 18% for existing employees this year, while new hires' salaries went up by 15% to 25%. That doesn't include sign-on bonuses for all new IT employees and stock options for some existing ones in key positions.

"That's what they've been asking for," says Eric Nelson, IT manager at the firm. "They're a lot braver than they used to be — they know they can find a job on their lunch break."

In addition, "every job candidate usually has two to three offers in hand before we even see them, and probably 50% are no-shows," Nelson adds. "It's really competitive."

As in the past couple of years, companies are going to great lengths to attract, keep and motivate talented IT workers. At Lisle, Ill.-based Tellabs Operations Inc., which designs, manufactures and supports telecommunications equipment, a $1.8 million program gives employees a chance to win $4,500 if a referral gets hired. Just for submitting a résumé, applicants can win a DVD player or new car.

Meanwhile in Dallas, a small Internet consulting company is moving to attract employees. "We're in a part of town that we have been told recruits do not want to work in," says the manager of e-business, who asked not to be identified. "They say, 'Why should I have to come west of downtown?' "

Call it pandering to prima donnas, but this is what it takes to hire the best and brightest IT talent today. And these moves are in addition to double-digit salary increases and ever-more-generous bonus plans.

But there are a couple of differences this year. For one, while companies will spend what's necessary to attract IT talent, they're not about to let IT workers lead them around by the nose.

"Some people are making outrageous demands in terms of looking for several hundred thousand for two years out of school," says Cathie Kozik, vice president of global information systems at Tellabs. "To those folks we say, 'Thanks very much, but we'll move on.' Prior to the fallout in the dot-com sector, I think they were finding it. But now the dot-

COMPUTERWORLD'S 14th Annual SALARY SURVEY

Rising
Riches

coms don't have money to throw at them, so corporations like ourselves are not at as great a disadvantage."

"People are exploiting the situation right now," agrees Nelson. "I've seen junior-type Unix administrators asking for $80,000 to $90,000 who we'd offer $65,000 to $70,000 at the most if they were pretty good."

Tellabs raised salaries among IT workers by 5% to 15% after conducting its annual market analysis. Bonuses are in the 5% to 35% range, compared with last year's 5% to 20% range. Some workers, such as those with SAP and Unix administration skills, are seeing 50% salary increases. New IT employees are offered sign-on bonuses, and current employees get stock options.

Another difference is that stock options are starting to lose their luster. Instead, companies are turning to innovative bonus plans, which pose a number of advantages: They can attract, retain or motivate workers and — because they are variable — can help maintain payrolls through good and bad times.

"When times are good, the bonuses are great, but when times aren't, the company isn't committed to paying high salaries," says the e-business manager. Almost one-third of his own compensation is based on a performance bonus. "It's also a good way to keep people, because you have to stay a while to get your bonus, so it's easier to turn down other offers," he says. At the consulting company, bonuses range from 8% to 15% of an employee's salary, with the highest ones going to people with project management, XML, Java and Wireless Application Protocol/Wireless Markup Language skills.

The basic trend in bonuses is to

ILLUSTRATIONS BY CHRIS SHARP

"Now the dot-coms don't have money to throw at them, so corporations like ourselves are not at as great a disadvantage."

CATHIE ROZIR, VICE PRESIDENT OF GLOBAL INFORMATION SYSTEMS, TELLABS OPERATIONS INC.

Trends We're Seeing

ONCE A YEAR, NEEDED OR NOT. 90% of IT managers still conduct salary reviews for their employees only once a year, despite the wish by many for more frequent salary benchmarks.

READ ALL ABOUT IT! 55% of IT managers say published salary surveys are still the primary source for IT salary benchmarks, followed by networking with peers, industry statistics and purchased market research.

KEEPING WORKERS PERK-Y. When it comes to noncash perks, managers are most likely to offer their IT employees more training (79%), conferences (54%), comp time (51%), enhanced work facilities such as a gym or cafeteria (25%) and stock options (19%).

BIG BUCKS FOR THE BIG CHEESE. IT executives and senior managers received huge bonuses in the past year. CIOs and chief technology officers did especially well, topping $30,000 in bonus pay.

SOMETHING FOR YOUR TROUBLE. The bonuses paid to rank-and-file IT employees increased anywhere from 50% to 132% last year, depending on job title.

Job Titles and Descriptions Surveyed

TOP IT MANAGEMENT
CIO/vice president of IS/IT: Top IS/IT executive for the organization, enterprisewide
CTO: Responsible for technology direction in organization
Director of IS/MIS: Top IS/MIS executive for a business unit or division
Director of systems development: Top systems development executive; directs systems management/applications programming (large-scale and desktop machines)
Director of networks: Top networking executive; manages voice and data communications
Director of IS/IT operations: Top operations executive; directs the data center and systems operations group
Internet technology strategist: Oversees integration of Web reporting, workflow, e-mail tracking, streaming media content, integration and security processes
Web architect: Responsible for the development of customer applications for Internet development, maintaining Web servers and back-office infrastructure linkage

SYSTEM DEVELOPMENT AND INTEGRATION
Manager of Internet/intranet technology: Manages all Internet or intranet-related activities, including development, implementation and operations
Project manager, systems and programming: Defines project system requirements and the procedures needed to complete the projects
Database manager: Directs the group responsible for database design, programming and maintenance
Senior systems analyst: Designs advanced system requirements to solve business problems
Database analyst: Develops both physical and logical database functions
Systems analyst/administrator: Analyzes business processes and designs basic system requirements
Senior systems programmer: Responsible for system software, operating systems and related integration
Senior programmer/analyst: Develops, tests and maintains advanced application programs
Systems programmer: Performs basic programming tasks
Programmer/analyst: Develops, tests and maintains basic application programs

TECHNICAL SERVICE AND OPERATIONS
Computer operations/DP manager: Manages computer systems, data processing and communications groups
Lead computer operator: Responsible for scheduling, processing, distributing and controlling the processing of information
Computer operator: Responsible for daily processing and backup of information
Technical specialist: Provides technical support for operating systems and monitors processing efficiencies

PC END-USER SUPPORT
Technology support/help desk manager: Manages end-user hardware and software support
PC technology support specialist: Responsible for overall maintenance of PCs
Help desk operator: Answers user support questions

NETWORKS
Manager of voice and data communications: Manages voice and data communications
LAN manager: Responsible for planning, designing and operating the LAN as well as establishing all procedures relating to the LAN environment
E-commerce network administrator: Manages Web-based network servers and monitors volume of e-commerce transactions
Network administrator: Administers, defines, updates and maintains networks
Information security specialist: Responsible for maintaining the security of computer systems, network applications and databases

drive executive compensation principles down into the ranks, says David Foote, managing partner at Foote Partners LLC in New Canaan, Conn. An example is a program that gives bonuses for performance over two or three years, not just annually, with a big bump in stock and cash.

"Companies are paying bonuses in creative ways, to contractors, consultants and full-timers to get the work done," Foote says.

San Francisco-based Embark.com — a Web marketplace for students to interact with academic institutions and related businesses — is also increasing its bonus pool.

COMPUTERWORLD'S 14th Annual SALARY SURVEY

"It's a change in our company's policy to be more generous in bonuses, and retention is one of the big factors," says Philip Joung, director of technology. Overall, Embark is increasing its performance bonuses, from approximately 5% to 10% of individual workers' salaries to about 10% to 15%. This is in addition to 20% raises for most positions this year.

But even with bonuses, many companies are careful not to throw their money around. "They are segmenting their worker populations into the 'will-performs' and 'won't-performs' to filter out the laggards," Foote says.

Certain jobs command higher bonus and salary increases than others. At Embark, the hottest positions are senior developers, senior project managers and database architects, Joung says. The most dramatic increase was for highly skilled database architects, with salaries jumping 30% to 40%.

According to Foote, the biggest salary increases nationally were for security managers and administrators,

TOTAL IT COMPENSATION (SALARY PLUS BONUSES) BY REGION

	New England	Middle Atlantic	East-North Central	West-North Central	South Atlantic	East-South Central	West-South Central	Mountain	Pacific
CIO	$124,100	$165,000	$142,595	$149,435	$194,012	$141,333	$148,759	$154,700	$178,810
Director of IS/MIS	$81,750	$113,727	$88,162	$100,561	$108,829	$103,333	$95,632	$102,292	$130,684
Director of networks	$74,500	$87,906	$87,500	$96,048	$120,380	$82,800	$88,711	$106,900	$120,481
Project manager	$85,563	$77,417	$75,788	$77,906	$91,710	$92,800	$75,813	$90,313	$94,779
Technology support manager	$68,042	$69,750	$63,550	$67,896	$71,930	$65,000	$60,000	$70,444	$76,969
Senior systems administrator	$59,133	$66,609	$66,848	$69,236	$77,930	$63,786	$60,267	$65,167	$74,763
Network administrator	$60,557	$61,548	$56,026	$55,965	$57,929	$50,000	$62,075	$53,444	$63,462
Systems programmer	$53,000	$62,773	$59,400	$55,441	$67,870	$58,143	$56,393	$56,650	$62,609
Programmer/analyst	$45,625	$53,977	$55,241	$49,433	$61,400	$55,875	$49,967	$60,938	$63,402
Help desk operator	$36,136	$33,725	$40,210	$36,429	$44,061	$35,714	$31,972	$34,258	$42,199

● REGIONS ARE AS FOLLOWS: NEW ENGLAND • MAINE VERMONT NEW HAMPSHIRE MASSACHUSETTS CONNECTICUT RHODE ISLAND MIDDLE ATLANTIC • NEW YORK NEW JERSEY PENNSYLVANIA SOUTH ATLANTIC • DELAWARE DISTRICT OF COLUMBIA MARYLAND VIRGINIA WEST VIRGINIA NORTH CAROLINA SOUTH CAROLINA GEORGIA FLORIDA PUERTO RICO U.S. VIRGIN ISLANDS EAST NORTH CENTRAL • WISCONSIN MICHIGAN ILLINOIS INDIANA OHIO EAST SOUTH CENTRAL • KENTUCKY TENNESSEE MISSISSIPPI ALABAMA WEST NORTH CENTRAL • NORTH DAKOTA SOUTH DAKOTA MINNESOTA NEBRASKA IOWA KANSAS MISSOURI WEST SOUTH CENTRAL • OKLAHOMA ARKANSAS LOUISIANA TEXAS MOUNTAIN • IDAHO MONTANA WYOMING NEVADA UTAH COLORADO ARIZONA NEW MEXICO PACIFIC • ALASKA WASHINGTON OREGON CALIFORNIA HAWAII GUAM

SENIOR MANAGEMENT								MIDDLE MANAGEMENT	
CIO/vice president of IS/IT	**Chief technology officer**	**Director of IS/MIS**	**Director of systems development**	**Director of networks**	**Director of IS operations**	**Internet technology strategist**	**Web architect**	**Manager of voice and data communications**	**LAN manager**
Average salary: **$132,798**	Average salary: **$132,790**	Average salary: **$91,789**	Average salary: **$96,803**	Average salary: **$86,789**	Average salary: **$88,702**	Average salary: **$87,366**	Average salary: **$71,513**	Average salary: **$70,723**	Average salary: **$66,963**
Bonus: **$31,005**	Bonus: **$32,491**	Bonus: **$14,165**	Bonus: **$15,826**	Bonus: **$12,751**	Bonus: **$13,590**	Bonus: **$12,762**	Bonus: **$9,846**	Bonus: **$9,152**	Bonus: **$7,106**
Total: **$163,803**	Total: **$165,281**	Total: **$105,954**	Total: **$112,629**	Total: **$99,540**	Total: **$102,292**	Total: **$100,130**	Total: **$81,359**	Total: **$79,875**	Total: **$73,069**
Business services, consulting/sys. integ. **$351,905**	Business services, consulting/sys. integ. **$271,263**	Computer hardware/ software/peripherals **$173,125**	Computer hardware/ software/peripherals **$154,300**	Computer hardware/ software/peripherals **$159,667**	Computer hardware/ software/peripherals **$136,800**	Financial **$144,650**	Business services, consulting/sys. integ. **$122,045**	Computer hardware/ software/peripherals **$137,000**	Computer hardware/ software/peripherals **$113,000**
Business services, IT **$286,500**	Computer hardware/ software/peripherals **$260,000**	Business services, consulting/sys. integ. **$163,480**	Business services, consulting/sys. integ. **$150,333**	Business services, consulting/sys. integ. **$139,205**	Business services, consulting/sys. integ. **$136,727**	Business services, consulting/sys. integ. **$137,143**	Financial **$108,056**	Business services, consulting/sys. integ. **$109,910**	Business services, consulting/sys. integ. **$101,167**
Computer hardware/ software/peripherals **$281,000**	Insurance **$210,333**	Petroleum exploration/ production/refining **$125,000**	Financial **$147,036**	Financial **$126,033**	Financial **$136,059**	Computer hardware/ software/peripherals **$132,500**	Computer hardware/ software/peripherals **$105,667**	Financial **$100,833**	Business services, IT **$83,200**
Apparel/ textile **$214,929**	Business services, IT **$206,400**	Financial **$124,806**	Telecommunications **$122,000**	Insurance **$113,750**	Business services, IT **$111,500**	Business services, IT **$119,000**	Business services, IT **$92,000**	Government **$73,032**	Financial **$78,662**
Retail **$203,333**	Financial **$189,600**	Business services, IT **$124,250**	Retail **$121,167**	Business services, IT **$113,000**	Aerospace/defense **$109,900**	Insurance **$105,250**	Transportation **$90,571**	Distribution/ wholesale **$72,556**	Health care **$76,700**
Health care **$182,043**	Health care **$155,500**	Telecommunications **$116,000**	Transportation **$119,000**	Health care **$105,219**	Health care **$103,678**	Health care **$95,444**	Health care **$78,667**	Health care **$70,857**	Insurance **$70,854**
Industrial equipment **$177,200**	Media **$146,667**	Utilities **$112,800**	Health care **$116,357**	Retail **$104,667**	Utilities **$102,500**	Transportation **$86,750**	Distribution/ wholesale **$77,333**	Retail **$64,800**	Government **$69,220**
Financial **$177,063**	Distributors/ wholesale **$126,875**	Insurance **$106,150**	Media **$115,714**	Media **$102,000**	Distribution/ wholesale **$99,806**	Distribution/ wholesale **$86,167**	Government **$61,523**	Transportation **$62,667**	Media **$66,900**
Food/beverage/ tobacco **$171,800**	Government **$94,633**	Industrial equipment **$104,938**	Insurance **$106,938**	Transportation **$98,750**	Insurance **$96,000**	Media **$78,750**	Nonprofit **$53,500**	Insurance **$60,625**	Distribution/ wholesale **$65,063**
Insurance **$159,882**	Education **$91,583**	Food/beverage/ tobacco **$104,111**	Distribution/ wholesale **$100,200**	Electronics/electrical equipment **$85,667**	Retail **$92,571**	Government **$75,950**	Education **$48,176**	Education **$54,714**	Nonprofit **$63,167**
Less than $100M: **$130,825**	Less than $100M: **$137,500**	Less than $100M: **$86,568**	Less than $100M: **$106,036**	Less than $100M: **$83,406**	Less than $100M: **$117,794**	Less than $100M: **$130,000**	Less than $100M: **$73,714**	Less than $100M: **$66,808**	Less than $100M: **$63,167**
$110M to $499.9M: **$115,767**	$110M to $499.9M: **$110,800**	$110M to $499.9M: **$84,123**	$110M to $499.9M: **$83,257**	$110M to $499.9M: **$71,808**	$110M to $499.9M: **$74,603**	$110M to $499.9M: **$70,500**	$110M to $499.9M: **$71,579**	$110M to $499.9M: **$64,411**	$110M to $499.9M: **$61,298**
$500M or more: **$206,723**	$500M or more: **$203,296**	$500M or more: **$120,360**	$500M or more: **$120,938**	$500M or more: **$111,578**	$500M or more: **$106,628**	$500M or more: **$103,147**	$500M or more: **$83,970**	$500M or more: **$85,431**	$500M or more: **$78,774**

network engineers and administrators, all architecture jobs, cross-functional project managers, business technologists, enterprise infrastructure workers and business analysts. There were also significant salary increases for New Age database architects who can blend database, network, systems and specific application skills.

But simply having the right skill at the right time can give you a big boost. At the Dallas consulting company, a Web developer who was with the firm for six months doubled her salary when she joined another company, thanks to the experience she had gained with Austin, Texas-based Vignette Corp.'s Story Server. As a result, the e-business manager says, the company needs to conduct twice-a-year salary reviews. "If that's what can happen after six months of experience, the salary should reflect that," he says.

Perhaps the only downside for IT workers in today's climate is the profusion of job offers they have to consider.

"It's one of the most complex times I've ever seen, both [as] an individual evaluating job offers and a manager trying to retain them, because of the richness of offers that I'm seeing," says Tom Franklin, a vice president at Concours Group, a consultancy in Houston.

For example, which offer would you accept: One from a start-up with a low salary but lots of stock options; one from a traditional manufacturer with a decent salary but not much upside growth; or one from a public software company with a lower salary but the opportunity to exercise stock options in the short term? "It's a little hard to sort those out," Franklin says.

What's starting to happen is that people look beyond the monetary compensation and ask themselves

Life is Good at The Bottom

IT SALARIES FOR ENTRY-LEVEL EMPLOYEES IN HIGH-DEMAND JOBS

Senior systems analyst	**$49,488**
Senior systems programmer	**$48,445**
Systems analyst/administrator	**$44,507**
Information security specialist	**$44,439**
E-commerce network administrator	**$42,571**
Systems programmer	**$41,332**
Network administrator	**$41,036**

MIDDLE MANAGEMENT

Manager of Internet/intranet technology	Project manager, systems and programming	Database manager	Computer operations manager	Technical support manager
Average salary: $73,718	Average salary: $73,804	Average salary: $71,178	Average salary: $65,719	Average salary: $61,109
Bonus: $8,284	Bonus: $8,884	Bonus: $7,747	Bonus: $7,891	Bonus: $8,507
Total: $82,000	Total: $82,488	Total: $78,925	Total: $73,610	Total: $67,616

STAFF AND ENTRY LEVEL

Network administrator	E-commerce network administrator	Information security specialist	Senior systems analyst	Systems analyst/ administrator
Average salary: $52,735	Average salary: $58,741	Average salary: $62,013	Average salary: $63,711	Average salary: $57,766
Bonus: $4,277	Bonus: $5,446	Bonus: $4,268	Bonus: $5,362	Bonus: $5,194
Total: $57,012	Total: $64,187	Total: $66,281	Total: $69,073	Total: $62,960

TOP 10 INDUSTRIES FOR IT PAY (BY TOTAL COMPENSATION)

Business services, consulting/sys. integ. $120,632	Apparel/textile $106,000	Business services, consulting/sys. integ. $107,413	Computer hardware/ software/peripherals $112,500	Business services, consulting/sys. integ. $96,120	Computer hardware/ software/peripherals $81,111	Business services, consulting/sys. integ. $76,250	Business services, consulting/sys. integ. $84,548	Business services, consulting/sys.integ. $83,833	Computer hardware/ software/peripherals $77,000
Computer hardware/ software/peripherals $103,200	Business services, consulting/sys. integ. $100,758	Computer hardware/ software/peripherals $102,500	Business services, consulting/sys. integ. $96,739	Computer hardware/ software/peripherals $82,750	Aerospace/defense $69,429	Business services, IT $75,375	Retail $67,750	Computer hardware/ software/peripherals $80,571	Business services, consulting/sys. integ. $73,273
Insurance $101,250	Computer hardware/ software/peripherals $98,000	Transportation $95,400	Apparel/textile $96,200	Financial $77,859	Business services, consulting/sys. integ. $66,614	Government $66,500	Government $67,563	Apparel/textile $77,357	Insurance $70,750
Financial $99,250	Financial $93,657	Financial $90,700	Automotive $94,800	Business services, IT $73,167	Apparel/textile $65,556	Health care $58,400	Insurance $62,600	Consumer products $76,375	Electronics/electrical equipment $69,500
Transportation $78,700	Electronics/electrical equipment $90,100	Insurance $79,276	Transportation $84,000	Transportation $71,000	Business services, IT $64,563	Distribution/ wholesale $55,500	Health care $62,500	Industrial equipment $73,000	Health care $65,407
Aerospace/defense $76,375	Transportation $88,571	Business services, IT $76,740	Financial $79,406	Health care $65,924	Construction $61,071	Financial $55,125	Financial $60,625	Insurance $73,000	Financial $62,833
Health care $74,722	Telecommunications $84,500	Health care $76,192	Food/beverage/ tobacco $78,800	Government $65,013	Utilities $59,600	Education $45,000	Distribution/ wholesale $53,571	Electronics/electrical equipment $72,400	Retail $62,250
Distribution/ wholesale $74,714	Media $62,286	Government $71,256	Utilities $74,100	Retail $64,045	Government $59,426		Education $44,133	Business services, IT $69,100	Utilities $61,125
Government $73,778	Insurance $60,292	Distribution/ wholesale $66,444	Health care $72,138	Media $63,500	Food/beverage/ tobacco $58,667			Aerospace/defense $66,500	Government $60,758
Education $48,750	Nonprofit $78,333	Education $60,861	Government $69,778	Insurance $63,417	Consumer products $57,929			Retail $66,429	Transportation $60,250

TOTAL COMPENSATION BY COMPANY SIZE (COMPANIES RANKED BY REVENUE)

Less than $100M: $70,800	Less than $100M: $75,975	Less than $100M: $66,000	Less than $100M: $64,863	Less than $100M: $56,750	Less than $100M: $55,537	Less than $100M: $58,500	Less than $100M: $69,227	Less than $100M: $69,893	Less than $100M: $58,692
$110M to $499.9M: $98,500	$110M to $499.9M: $70,625	$110M to $499.9M: $85,815	$110M to $499.9M: $82,095	$110M to $499.9M: $64,291	$110M to $499.9M: $51,528	$110M to $499.9M: $57,444	$110M to $499.9M: $52,543	$110M to $499.9M: $62,219	$110M to $499.9M: $56,593
$500M or more: $86,484	$500M or more: $87,706	$500M or more: $84,275	$500M or more: $77,750	$500M or more: $71,411	$500M or more: $60,320	$500M or more: $65,543	$500M or more: $67,284	$500M or more: $69,952	$500M or more: $63,330

> [Dot-coms] don't have the drawing power with stock options they used to have.
>
> TOM FRANKLIN, VICE PRESIDENT, CONCOURS GROUP

whether the work looks interesting and exciting in the short term and how well the job positions them for the next job they take, Franklin says.

People will work for below-market salaries if other things are in place. For instance, in addition to looking forward to Embark's initial public offering, "people feel loyalty toward our company because they're working in the education arena, and they feel like they're here to make a contribution to that," Joung says.

These attitudes are encouraging companies to be creative about the types of compensation and rewards they offer, including "a three-month sabbatical, for instance," Foote says.

Applied Signal has managed to keep its turnover to a low 5%, and Nelson attributes a lot of that to its emphasis on training. "We've got a very generous tuition-reimbursement program, the best I've ever seen. We're also real big on letting people move around in the department and to keep them challenged and let them play with new toys all the time."

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Kozik attributes high retention rates to Tellabs' success in its market and the growth opportunities it affords.

"We have a lot of cool things going on," she says. "We're coming up to speed quickly in e-business, so we're using the latest technologies, and we just finished an upgrade to SAP 4.6, so there's an opportunity to stay ahead of the technology curve."

Tellabs also runs a program called Dreamquest, in which supervisors work with employees on career programs. "The whole focus is to say,

STAFF AND ENTRY LEVEL

Senior systems programmer	Senior programmer	Senior programmer/ analyst	Programmer/ analyst	Database analyst	Lead computer operator	Computer operator	Technical specialist	Help desk operator	PC technical support specialist
Average salary: $83,732 Bonus: $5,293 Total: $59,025	Average salary: $54,383 Bonus: $5,039 Total: $59,422	Average salary: $61,803 Bonus: $5,049 Total: $66,852	Average salary: $51,623 Bonus: $4,663 Total: $56,286	Average salary: $60,919 Bonus: $4,800 Total: $65,719	Average salary: $40,804 Bonus: $2,487 Total: $43,291	Average salary: $33,917 Bonus: $2,505 Total: $36,422	Average salary: $46,732 Bonus: $3,336 Total: $50,068	Average salary: $36,421 Bonus: $2,181 Total: $38,602	Average salary: $39,751 Bonus: $2,525 Total: $42,276
Computer hardware/ software/peripherals: $90,000	Computer hardware/ software/peripherals: $78,667	Computer hardware/ software/peripherals: $82,143	Apparel/textile: $73,400	Aerospace/defense: $87,000	Business services, consulting/sys. integ.: $55,632	Business services, consulting/sys. integ.: $46,816	Computer hardware/ software/peripherals: $69,056	Computer hardware/ software/peripherals: $47,786	Computer hardware/ software/peripherals: $48,369
Business services, IT: $83,000	Business services, consulting/sys. integ.: $71,544	Business services, consulting/sys. integ.: $78,996	Business services, consulting/sys. integ.: $68,321	Media: $85,143	Business services, IT: $45,300	Government: $37,097	Business services, consulting/sys. integ.: $61,476	Business services, consulting/sys. integ.: $43,304	Business services, consulting/sys. integ.: $46,748
Aerospace/defense: $80,800	Financial: $63,167	Aerospace/defense: $78,667	Computer hardware/ software/peripherals: $68,143	Computer hardware/ software/peripherals: $76,800	Distribution/ wholesale: $44,722	Education: $36,400	Business services, IT: $61,000	Apparel/textile: $41,000	Retail: $45,909
Business services, consulting/sys. integ.: $79,609	Distribution/ wholesale: $58,000	Apparel/textile: $76,889	Financial: $67,304	Retail: $74,800	Government: $44,150	Retail: $36,000	Financial: $54,286	Government: $40,096	Insurance: $44,667
Insurance: $74,313	Government: $57,513	Financial: $76,235	Consumer products: $60,750	Business services, consulting/sys. integ.: $72,923	Health care: $43,591	Insurance: $35,455	Food/beverage/ tobacco: $51,375	Business services, IT: $39,300	Government: $44,666
Transportation: $69,833	Health care: $56,848	Transportation: $72,667	Transportation: $60,250	Health care: $67,182	Utilities: $42,900	Utilities: $34,917	Health care: $49,295	Construction: $38,600	Petroleum exploration/ production/refining: $44,200
Financial: $68,788	Insurance: $54,700	Utilities: $68,333	Distribution/ wholesale: $59,444	Utilities: $65,900	Retail: $42,167	Business services, IT: $34,667	Government: $44,224	Plastics/rubber/ stone/glass: $37,800	Construction: $43,167
Distribution/ wholesale: $68,500	Transportation: $54,600	Health care: $66,310	Utilities: $67,250	Government: $60,548	Plastic/rubber/ stone/glass: $38,333	Financial: $34,433	Distribution/ wholesale: $44,000	Financial: $37,406	Distribution/ wholesale: $42,400
Health care: $67,279	Education: $47,167	Government: $64,569	Industrial equipment: $55,266	Financial: $60,188	Insurance: $37,500	Health care: $34,000	Education: $37,458	Distribution/ wholesale: $36,231	Financial: $41,475
Government: $61,736	Retail: $46,600	Insurance: $64,208	Government: $54,329	Insurance: $59,778	Financial: $35,727	Distribution/ wholesale: $33,610	Retail: $35,400	Education: $35,056	Plastic/rubber/ stone/glass: $41,000
Less than $100M: $64,085 $110M to $499.9M: $66,082 $500M or more: $70,205	Less than $100M: $60,944 $110M to $499.9M: $58,462 $500M or more: $59,538	Less than $100M: $69,194 $110M to $499.9M: $61,499 $500M or more: $67,997	Less than $100M: $60,791 $110M to $499.9M: $61,819 $500M or more: $57,134	Less than $100M: $59,143 $110M to $499.9M: $59,333 $500M or more: $67,978	Less than $100M: $45,592 $110M to $499.9M: $41,179 $500M or more: $43,604	Less than $100M: $34,050 $110M to $499.9M: $34,268 $500M or more: $37,991	Less than $100M: $48,417 $110M to $499.9M: $45,258 $500M or more: $51,364	Less than $100M: $38,668 $110M to $499.9M: $38,281 $500M or more: $40,034	Less than $100M: $44,000 $110M to $499.9M: $38,303 $500M or more: $44,004

'Where do you want to go, and what are the competencies to get you there?' " Kozik says.

Analyzing job offers is only going to get more difficult, especially with the shakeout that occurred this year for dot-com firms, Franklin says. "They don't have the drawing power with stock options they used to have, but they can't offer bonuses based on earnings because they don't have earnings in their early plans," he says. New models will likely emerge among start-ups, such as offering options redeemable in stock if the company goes public, and if it doesn't, options for another company's tradable stock.

But one thing is certain: Salaries and bonuses will continue their healthy increases throughout this year and well into the next, as companies remain willing to pay top dollar for true talent.

"The right person for the job can be more effective than three unsuitable candidates," Joung says. "So even though salaries may be high, there is still a better return to pay one very productive individual than multiple poorly performing workers." ◗

Brandel is a freelance writer in Newton, Mass.

Methodology

Computerworld's Annual Salary Survey was mailed to 14,846 IT managers and senior executives in June and July. Our survey asked about annual salaries, annual salary increases and additional compensation.

A total of 756 companies, employing 788,320 IT professionals, provided average IT salaries for this survey. The number of companies reporting salary data for each job title is as follows:

SENIOR MANAGEMENT:
- CIO/vice president of IS/ IT: 322
- Chief technology officer: 107
- Director of IS/ MIS: 388
- Director of systems development: 218
- Director of networks: 205
- Director of IS operations: 206
- Internet technology strategist: 125
- Web architect: 163

MIDDLE MANAGEMENT:
- Manager of voice and data communications: 179
- LAN manager: 248
- Manager of Internet/intranet technology: 148
- Project manager, systems and programming: 284
- Database manager: 199
- Computer operations manager/ DP manager: 244
- Technical support manager/ help desk manager: 244

STAFF AND ENTRY LEVEL:
- Network administrator: 264
- E-commerce network administrator: 83
- Information security specialist: 122
- Senior systems analyst: 285
- Systems analyst/ administrator: 193
- Senior systems programmer: 199
- Systems programmer: 198
- Senior programmer/analyst: 246
- Programmer/analyst: 284
- Database analyst: 170
- Lead computer operator: 198
- Computer operator: 208
- Technical specialist: 196
- Help desk operator: 248
- PC technical support specialist: 317

Notes: Vertical industry salary figures are not a statistically valid measure of average salaries for those industries and should be used for comparative rankings only. Averages by title and company size are a more reliable measure of typical salaries.

Aggregators

BY STEVE ALEXANDER

DEFINITION

Aggregators are Web companies such as Yahoo Inc. that combine content or applications from multiple online sources. Recently, a new generation of aggregators has been reselling a potpourri of information to other Web sites and to corporations that operate external or intranet Web sites. Some analysts call this reselling process "syndication."

Based on the theory that you can't have too much of a good thing, a new generation of Web aggregators is combining content or applications from many sources and service providers into single Web sites.

These firms gather content or applications and market them to third-party Web sites. They differ from traditional aggregators, which collect information exclusively for their own sites. The new aggregators offer everything from consolidated consumer financial information to business applications from application service providers (ASP). They can be divided into two categories: displayers of information and resellers.

Displayers collect and display specialty information from multiple sources. That information can include subjects such as skateboarding, crafts and women's sports. This is the traditional model embodied by Web sites such as Santa Clara, Calif.-based Yahoo Inc.

Resellers have emerged as a type of aggregator. They collect content or applications and remarket them to Web sites operated by other firms. Depending on their focus, these aggregators market to consumer-oriented sites and to corporations that operate external Web sites for customers or intranet sites for employees.

For instance, telecommunications equipment firm Nortel Networks Corp. in Brampton, Ontario, buys general news and new product announcement information for its intranet from iSyndicate Inc., an aggregator and reseller in San Francisco.

"Aggregation is nothing new, but there are getting to be more Web aggregators all the time," says Kathleen Hall, an analyst at Giga Information Group Inc. in Cambridge, Mass. Aggregators are valuable, she says, because the broad array of content and applications they provide often helps keep visitors at a Web site longer and prompts them to return more often.

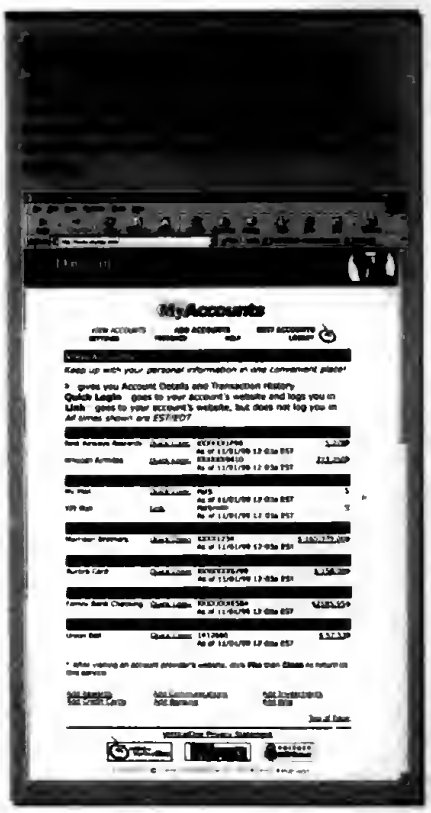
In addition, says Hall, "working with aggregators is easier for a corporation because it doesn't have to license [content or applications] from 20 different providers."

For example, Andrew Fritz, president of FringeGolf Inc. in San Francisco, which runs a Web site for young golfers, says he found he could contract for sports news and statistics content cheaper and more easily through iSyndicate than if he signed multiple contracts with other providers. He also says it helped that iSyndicate would host some of the content he licensed on its own server.

Jeff Thomas, iSyndicate's vice president of marketing, says aggregators like his company aren't interested in driving traffic to their own Web sites. "Our revenue model involves licensing fees or other fees. We don't really care whether or not there are millions of eyeballs on our dot-com site," he says.

Another aggregator/reseller is VerticalOne Corp. in Atlanta, which resells aggregated personal data such as financial information, online bill-paying services and accumulated incentives like frequent-flier benefits to consumer-oriented Web sites such as CNBC.com.

"Our service creates 'stickiness' for Web sites by giving people more reasons to be there," explains Sandra Dunn, VerticalOne's marketing vice president. Her company gets personal information by logging into servers at banks and other institutions, using user identifications and passwords provided by individual consumers.



Thomas says it may not always be cheaper for a dot-com customer to buy content via an aggregator, but it's easier than contracting with multiple sources. This reselling of content for a fee, sometimes called "syndication," "is emerging as an organizational principle for all of e-business," he says.

Daniel O'Brien, an analyst at Forrester Research Inc. in Cambridge, Mass., says he agrees that syndication will be big on the Web. "Dispersed digital audiences will create a need for 'hypersyndicators' — firms that serve custom bundles of content, applications and commerce," he says. "Hypersyndicators will effectively connect providers and distributors and alter the economics of content distribution."

According to Victor Petri, an Internet global practice leader at PricewaterhouseCoopers in Boston, aggregation also makes sense for consumers or businesspeople who are trying to get information from the Internet.

"How many Web sites do you really want to go to? Web sites need to have more to offer than a niche application or a niche service. More of these Web companies will have to consolidate their content and services," he says.

William Sheehan, an analyst at Giga Information Group Inc. in Cambridge, Mass., says ASP services are the latest type to be aggregated online. Sites such as Jamcracker Inc.'s Jamcracker.com aggregate applications that include customer relationship management and human resources management systems.

ASP aggregators aren't yet common because the service provider business model is still emerging. But there are about 10 ASP aggregators, including Sunnyvale, Calif.-based Jamcracker.com, that target firms demanding the wide choice of ASP applications that aggregation provides.

ASP aggregators should simplify the process of choosing an ASP application while offering discounts of 15% to 20% compared with what individual service providers would charge, Sheehan says.

Web aggregation may be slowed by low consumer demand, says Avivah Litan, an analyst at Gartner Group Inc. in Stamford, Conn. She says no more than 1 million consumers will use Web sites with aggregated information to help manage their personal finances this year, because it takes too much effort.

"The technology is there, but user demand and user ability to absorb the technology [aren't] there and won't be this year," Litan says.

Alexander is a freelance writer in Edina, Minn.

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JOE AUER/DRIVING THE DEAL

Negotiators should be held responsible

ARE YOU FRUSTRATED by IT colleagues who are less than motivated to do a really good business deal when procuring expensive IT products and services? If so, let them know that doing a good deal is a good thing and can be reflected in their job performance reviews.

As customers, ideally, we should keep the shareholders in mind and strive to do the very best deals by obtaining the best value for the money spent and by minimizing the risk of not getting what we're paying for. Fortunately, the corporate purchasing department is functionally focused on these objectives. But much of the time, IT professionals who sit in on negotiations with vendors are only concerned about the technical issues.

Aside from forming a comprehensive, cross-functional team, how does management spur the negotiators from IT to do better business deals?

One of the best ways is to make them realize that the contract with the vendor contains keys to their job success. Do they want to make sure they get their project done on time and within budget? Do they want a product that works and does what the vendor says it will do? Everything needs to be in the contract in order to have any assurance that all of that will happen.

When the contract is done well, it can help guarantee that the IT folks get what they want and gives them and the company recourse if they don't. It should spell out the business terms of the deal and who is responsible for what.

IT contract enlightenment doesn't happen overnight. There's a clear education and awareness component here that management must recognize and address. The key is to make sure IT staffers understand that if it's not in the contract, it's not part of the deal — and without a good contract, this deal may pose real risk to their projects and careers.

Mail Bag

Mike, an IT senior vice president and director of systems operations at a bank, wrote to me, asking about two key contract issues.

"I have seen two areas which generally take up a good deal of time in our contract negotiations. One is the broad issue of vendor limits of liability — either for errors in their systems and/or for intentional acts on the part of their employees. For the former, it's hard to get them to step up to the plate, especially if the software is relatively inexpensive in comparison to the 'damage' it can cause if it doesn't work correctly. They generally try to limit the damages to some factor of the price of the software/hardware. As for intentional acts of employees (we want this if we have contractors on-site), they really avoid it like the plague.

JOE AUER is president of International Computer Negotiations Inc. (www.dobetterdeals.com), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High Tech Acquisition Professionals. Contact him at joe@dobetterdeals.com.

"The second problematic issue is one of our confidentiality of the vendor's trade secret features and functionality of its software. They are very concerned about these getting into the hands of noncustomers. We use mostly off-the-shelf systems. As with a lot of companies, integration of these systems is critical, and additionally, at times, we use contract labor to perform some specific programming. (This could be the vendor of one of the systems we're trying to integrate, or a 'disinterested' third-party contractor.) Generally, the base contract of the licenser will try to make us indemnify them for confidentiality no matter what — even if we get a third party to perform some programming. We generally try to negotiate the base contract to state that the external parties work out confidentiality without us (allowing the vendors to work together again for a different client without another round of contract negotiations).

"Have you seen any trends in the above issues?"

Thanks, Mike. You've hit on two of the important issues where suppliers try to allocate most, if not all, of the risk to the customer.

We normally receive a number of comments from lawyers and lawyer wannabes in response to issues like these. So let's ask them: What trends do you see on these issues, and what's your position on them as a customer or vendor? E-mail me. Thanks!

BRIEFS

Survey Reveals Dot-com Migration

Thirty-two percent of traditional U.S. firms have lost employees to dot-coms, according to a survey of 3,400 executives conducted by BrilliantPeople.com, the online recruiting site of Management Recruiters International Inc. in Cleveland. In New England, 51.7% of firms reported employee losses to Internet firms. On the West Coast, 44.8% of firms reported losing employees to start-ups, followed by the Middle Atlantic region, with 42.7%. The Midwest and South Central regions had the lowest employee losses, with 78.2% and 88.8%, respectively, saying they haven't lost employees.

HMO Outsourcing Corporate Apps

Managed-care company Magellan Health Services Inc. in Columbia, Md., has signed up application service provider (ASP) Concur Technologies Inc. in Redmond, Wash., to deliver travel and expense software to its 12,500 employees. Magellan said that by using an ASP, it can divert information technology talent to more pressing application development and support.

Online ASP Directory Available From ITAA

Confused about who does what in the ASP market? You probably aren't alone. But if you're a member of the Arlington, Va.-based Information Technology Association of America, you can access an online directory of more than 1,250 ASPs. The directory, which includes ASP company profiles and product offerings, is managed by Alentis Corp. in Austin, Texas.

Flashline to Market Research From Meta

Cleveland-based online component broker Flashline.com Inc. has signed an agreement with Stamford, Conn.-based Meta Group Inc. to market Meta research about component technology and application development on its site. The two companies will share content, such as a Meta Group report on reusing software objects that's currently available on Flashline.com.

State Pioneers Web Address on Auto Plates

Pennsylvania has become the first state to post its Web site address on vehicle license plates. Pennsylvania is replacing its old moniker, Keystone State, with the address www.state.pa.us. The state began phasing out the old plates last year and hopes to complete the plate migration by 2002.

WWRE Names CEO

The WorldWide Retail Exchange (WWRE) last week named Colin Dyer as CEO. Dyer will oversee the development of the WWRE's e-commerce marketplace. He most recently served as CEO of U.K.-based Courtaulds Textiles PLC, an international clothing and fabric company operating in 17 countries. The WWRE's membership includes Albertson's Inc., CVS Corp., J. C. Penney Co., Kmart Corp., Longs Drug Stores Corp., Rite Aid Corp., Safeway Inc., Target Corp. and Walgreen Co.

Survey: Number of Job Seekers Rising

Search firms are seeing a 13.5% increase in the number of unsolicited résumés they received during the past year, according to a survey of 314 executive search firms conducted by ExecuNet in Norwalk, Conn. The increase is due to professionals taking advantage of a robust economy with a high demand for employees, and the advent of electronic media that make job hunting easier, said Dave Opton, president of ExecuNet.

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TECHNOLOGY

BRIDGING CONTENT

Content Bridge, an alliance announced last month by a group of leading Internet firms, including America Online, Inktomi and Digital Island, aims to establish a mutually beoeficial conoection betweeo content providers and access providers oo the Web. ▸ 61

MARKING TIME

Kyle Duke, a senior systems engineer at CHD Meridian Healthcare, discovered an easy, economical way to make sure application time stamps reflect local time zones, using SolutionSoft Systems' Time Machine tool. ▸ 62

FEEL THE MOUSE

Logitech has announced two new "sensatiooal" computer mice — pointing devices tbat actually provide tactile feedback as the user moves the mouse onto objects on the desktop. ▸ 63

SECURITY JOURNAL

Too many people get involved wben a business team asks to receive supplier data via the Internet. The result — a complex design that's too expensive to implement — gives our security manager's group a black eye. ▸ 64

RESTRICTED READING

Microsoft's oew electronic book reader software uses copy protection to impose stringent, unprecedented restrictions oo which computers can be used and how long a book can be read. Reviews editor Russell Kay wonders if this technically excelleot product hasn't been seduced by tbe dark side. ▸ 66

QUICKSTUDY

Simple Object Access Protocol (SOAP) is the glue that bolds XML-based applications together, enabling the effective interchange of data, regardless of system. Find out more about SOAP in this week's one-stop tutorial. ▸ 68

FUTURE WATCH

Robots are being developed with sensory and decision-making capabilities to perform searcb-and-rescue missions at the scene of natural and man-made catastropbes. ▸ 70

IT'S NOT WHAT YOU KNOW . . .

AT&T Labs researchers are working on new software that aims to use the buman face to help you track your "social network" — the people who help you do your job and may help find your oext one. ▸ 74

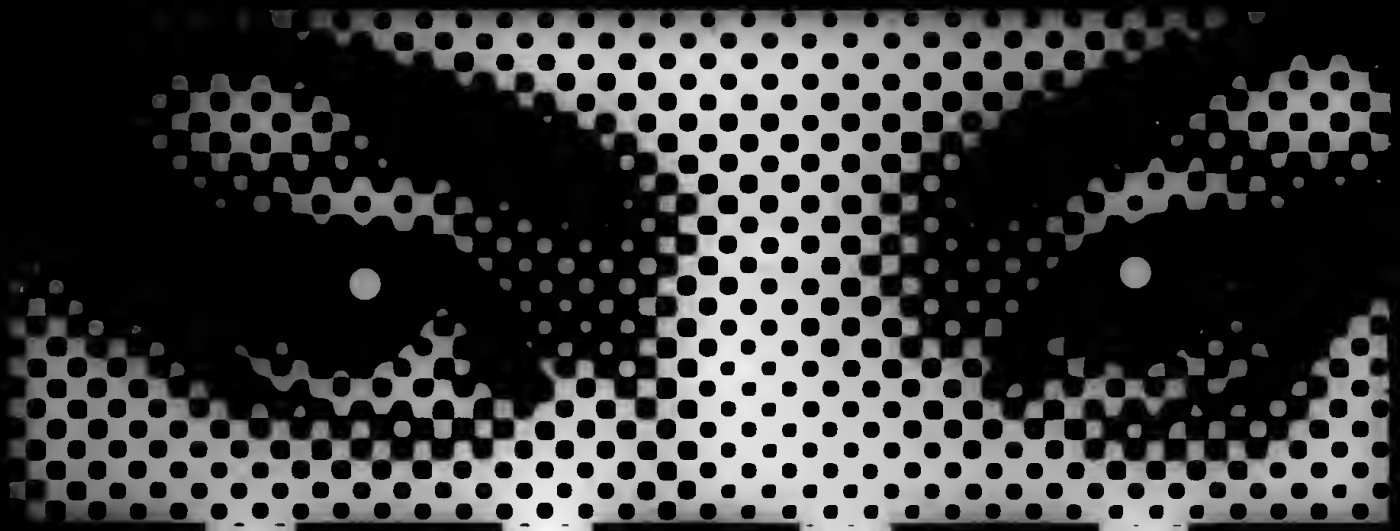
JOB WATCH

E-commerce is changing the way many technologists do their jobs. With these changes comes a variety of new job titles. Uoderstanding what they all mean can be a bit challenging. ▸ 78

SECURITY IN A WIRELESS SPACE

PIONEERS IN WIRELESS e-commerce are finding that it's tough to ensure the security of wireless transactions. It can be done, they say. But first you have to overcome the lack of end-to-end encryption in today's wireless networks and spotty authentication in wireless devices.

72



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Web Alliance Offers Fast Delivery, Usage Statistics

Includes major providers such as Inktomi and AOL

BY JAMES COPE

INTERNET ACCESS PROVIDERS that freely serve up information that content producers use to make money may soon have a system that reimburses them for their efforts. The same system promises to give content providers — companies that create commercial Web sites — a way to collect usage information and increase the performance of their sites.

Last month, a group of leading Internet firms announced Content Bridge, an organization and infrastructure that functions much like a toll road system on the public Internet.

Scheduled for launch this fall, the alliance promises a faster trip and smoother ride for Web content.

Alliance members include Inktomi Corp. in Foster City, Calif.; Exodus Communications Inc. in Santa Clara, Calif.; American Online Inc. in Dulles, Va.; and San Francisco-based Digital Island Inc. Adero Inc. in Boston will manage the system.

In return for fees that participating Web hosting companies will pay to Adero, caching companies in the alliance will provide usage information to Web hosting firms, which can then resell that information to their content provider customers.

Adero will share the revenue it collects with caching and content delivery companies that are members of the alliance. Those firms will speed delivery of information from those hosting companies to Web users.

Details of how much Adero will charge for its services haven't been worked out, officials said, but will be based on the number of hits to a site and the amount of content served.

Adero, founded in 1998, has raised $105 million from investors, including Intel Corp., Inktomi, Microsoft Corp. and Reuters America Inc. in New York.

Adero will provide network control, usage statistics logging and payment settlement. Digital Island; Madge Networks NV in Amsterdam; Genuity Inc. in Burlington, Mass.; Exodus; and Digital Island will all provide content delivery and caching.

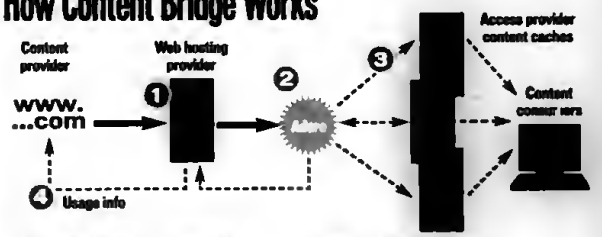
AOL will provide Web hosting, Web access and caching, while Inktomi will provide underlying caching technology.

Joel Yaffe, an analyst at Giga Information Group Inc. in Cambridge, Mass., said, "This is a bona fide alliance system that seeks to address a major problem: compensating the different parts of the Web value chain."

Moreover, the system gives content producers as much control over site information that has been pushed out to the caches of access providers as they now have over the content on their own origin servers, said Adero Senior Vice President Al Fink. When information is changed on the origin server, it will be automatically updated on all of the caches of the access provider members, said Fink.

And users should see better Web performance because up-to-date information is served from the cache farms of nearby access providers, Fink said.

How Content Bridge Works



1. Web content is sent to a hosting provider that's a member of the Content Bridge alliance.

2. The hosting provider notifies Adero, the content bridge operator, when content changes.

3. Adero duplicates content in the origin server on the caches of access providers such as AOL and collects usage statistics from access provider caches.

4. In return for the usage statistics and constantly refreshing content on the access provider caches, Adero charges the Web hosting provider based on number of hits and amount of content served and shares the proceeds with the access provider that served the content.

Visual Studio .Net To Pair With Tool

BY LEE COPELAND

In a bid to boost its .Net framework, Microsoft Corp. late last month announced that it will bundle Seagate Software's popular business reporting tool with Visual Studio .Net.

Microsoft's .Net framework, which was announced in June, is based on a Web service infrastructure that allows Windows applications to share data and functionality with other applications over the Web. The product is due to ship sometime next year, according to Microsoft officials.

Mike Schiff, an analyst at Current Analysis Inc. in Sterling, Va., said the bundling deal with Seagate Software, a subsidiary of Scotts Valley, Calif.-based Seagate Technology Inc., is an important one because it will give developers a decision analysis tool for building Windows and .Net-based Web applications.

"The whole idea of 'openness' is based on the number of vendors using your tools," said Schiff.

For example, a report application developed for the .Net framework could contain business logic to query stock or 401(k) reports, which users could refresh in real time.

So far, Crystal Reports is the only tool slated to ship with Visual Studio .Net, and Microsoft officials said it may be the last.

Tool Fixes Time-Zone Problem for Windows Servers

BY JAMES COPE

Serving up applications from a central data center to terminals at remote offices is standard operating procedure for Kyle Duke, a senior systems analyst at CHD Meridian Healthcare in Nashville. But that doesn't mean it's painless.

Using what Duke describes as an in-house application service provider model, software such as the practice-management system from Physician Computer Network Inc. in Morris Plains, N.J., is centrally managed and piped to remote office terminals. CHD Meridian's central management is accomplished with Microsoft Corp.'s Windows NT Terminal Server and terminal access software from Citrix Systems Inc. in Fort Lauderdale, Fla.

Duke's problem: The Windows NT-based application servers housed in Nashville that pushed applications to CHD Meridian offices throughout the U.S. couldn't recognize multiple time zones.

For CHD Meridian, that meant offices in other time zones would get out-of-zone time stamps. Those are the times and dates read from the server system clock that are automatically inserted in database files or stamped on documents by applications. In CHD Meridian's case, they're used in applications for physician scheduling, medical procedures and prescription documentation.

"Applications pushed from Windows NT and Windows 2000 servers don't automatically know what time zone the user is in," said David Friedlander, an analyst at Giga Information Group Inc. in Cambridge, Mass. The date issue is an annoyance that most firms that host applications from a central data center simply put up with, Friedlander said.

Microsoft product manager Mark Aggar said his company is aware of the time-zone constraints on Windows NT and 2000 Terminal Servers.

Duke described the time-zone issue as "a recurring problem that kept being pushed aside because of cost." But when Meridian Corporate Healthcare in Nashville merged with Corporate Health Dimensions in Latham, N.Y., last October to form CHD Meridian Healthcare, Duke saw the number of office sites in different time zones double overnight. He said the newly formed company knew then that it really "had to make a move" to solve the date problem.

One option was to set up several server farms, with one farm for each time zone, but that would have been expensive. Duke said that buying and installing each set of 20 servers would have cost about $750,000.

Fortunately for his employer, Duke routinely browses the support forums at Citrix's Web site.

"I ran across a reference to a product called Time Machine on one of the forums," he said. "I called for a demo and had it up and running the next week.

"We installed Time Machine on each of our application servers. It runs in the background. Users have a log-on script configured to their time zone. [Time Machine] automatically sets the session to their time zone whenever they log on," Duke explained.

"We were totally blown away when we found this," Duke said. "We installed it, and we haven't looked back."

A spokesman for San Jose-based SolutionSoft Systems Inc., which developed Time Machine, said that in addition to NT and 2000 Terminal Server, the tool also runs on Unix. But many Unix-based server systems accommodate multiple time zones.

Aggar said it's only in recent months that the time-zone problem has become an important issue with customers. Aggar wouldn't say if Microsoft is working on its own time fix, but he did acknowledge that Microsoft recommends Time Machine and said it may be the only commercial utility available that solves the problem.

Duke said CHD Meridian paid $3,000 for each of four five-pack licenses covering five servers, so the company's one-time cost for the time-stamp cure was $12,000. ▶

JUST THE FACTS

Time Stamping

CHD Meridian Healthcare is using a product called Time Mochine to solve its time-zone problem:

- All applications are served from the central data center
- More than 100 sites are served
- Time stamping occurs for all U.S. time zones
- The system is ready to accommodate time zones in Europe

Just a reminder that there are a growing number of reasons to host your Web site on a Microsoft® Windows® 2000 server.

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—data from Netcraft, June 2000 U.S. E-commerce Survey

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BRIEFS

Mercury Interactive Offers Global Stress-Testing

Web businesses can stress-test their servers and networks from 500 points of presence around the globe using the latest version of Topaz ActiveWatch from Mercury Interactive Corp. in Sunnyvale, Calif. The application-service-provider (ASP)-delivered service can determine where performance bottlenecks occur in a Web environment – in data center servers or somewhere on the Internet.

NEC Unveils New Monitor

NEC-Mitsubishi Electronics Display of America Inc. has announced the MultiSync LCD1800, a flat-panel desktop monitor that will cost about $2,499. The monitor offers an 18.1-in. viewable image area and 1,280 by 1,024 UXGA resolution.

It was designed for direct analog input, allowing for major video-card compatibility. It also offers low heat and radiation emissions and reduced power consumption. It weighs 18.1 lb. and is only 8.8 in. deep.

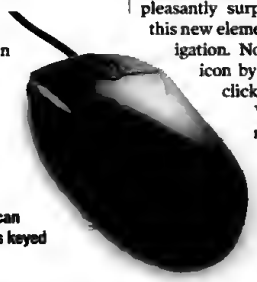
Mice May Tickle Users' Fancies With Tactile Feedback

BY RUSSELL KAY

Logitech Inc. has announced two sensational computer mice — and that's not hype. These pointing devices actually provide the user with tactile feedback, akin to vibration, as he moves the mouse onto an object such as an icon, menu selection or hyperlink.

The technology, called TouchSense and licensed from Immersion Corp. in San Jose, uses a programmable, motor-like device that creates specific sensations as the mouse is moved over various on-screen objects.

A variety of surface "textures" can be emulated, including metallic, spongy and rubbery.



LOGITECH'S iFeel mouse can create different sensations keyed to on-screen objects

You can, for example, set the mouse for a crisp, higher-frequency, highly damped response to icons and a rubbery (i.e., mushier, lower-frequency, slower damping) response to menu selections.

Software that comes with the products lets them function with and add their tactile feedback to all Windows-based software. In addition, applications and Web sites can be programmed to add additional sensations.

The iFeel mouse uses an optical technology for sensing movement, offering a high degree of precision while requiring no cleaning. This also permits the overall size of the mouse to be somewhat smaller than one using a mouse ball. It also makes it easier to incorporate the TouchSense mechanism.

Sensation Aids Precision

Using a prototype mouse, I was pleasantly surprised at the precision this new element added to mouse navigation. No longer did I miss an icon by a couple of pixels and click on it to no effect.

With the Logitech iFeel mouse, it's immediately apparent when you are on target. Although the new technology is being aimed at the general user population, it should be especially welcomed by individuals who have vision or even motor-control problems.

"As the on-screen landscape becomes more and more complex, it can often be challenging to home in on Web links or accurately seize a desired application or tool from the hierarchy of the start menu," said Wolfgang Hausen, senior vice president and general manager at the Control Devices Division of Fremont, Calif.-based Logitech.

"In the real world, we rely heavily on our sense of touch to orient and guide us," he said. "Why not use it tn enhance our compnting experience as well?"

The $59.95 iFeel MouseMan has a contoured design and metallic finish. A $39.95 companion, the iFeel Mouse, has an ambidextrous, symmetrical housing. Both products will be available this month.

DOE Awards Compaq a Supercomputer Contract

The U.S. Department of Energy's National Nuclear Security Administration (NNSA) recently awarded a $200 million contract to Compaq Computer Corp. to build a 30-teraFLOPS supercomputer. The computer, which will be housed at the NNSA's facilities in Los Alamos, N.M., will be used for simulating nuclear tests. The supercomputer, code-named Q, will consist initially of 375 Compaq AlphaServer ES320 systems with nearly 12,000 Alpha processors running on the vendor's Tru64 Unix operating system. It will occupy an area the size of five basketball courts and support nearly 600 terabytes of storage capacity. Initial deliveries will begin next month, and the complete system is expected to be operational by 2002, according to Compaq.

Novell Launches E-Business Software for ASPs, ISPs

Novell Inc. has announced the release of its OnDemand Services Software last week. The software was designed to help ASPs and Internet service providers (ISP) develop an electronic-business customer base by providing access to software, applications and content over the Web, according to the company. It also allows businesses to manage all users and accounts from a single location. On-Demand is priced at $1.10 per user per month.

Logistics.com to Adopt WebMethods B2Bi Software

Logistics.com last week announced that it will employ the B2Bi technologies of Fairfax, Va.-based webMethods Inc. to enhance its Digital Transportation Marketplace (DTM), a move aimed at making it easier for shippers and transportation providers to integrate the DTM's business processes into their enterprise software.

Burlington, Mass.-based Logistics.com helps shippers and transportation carriers manage, optimize and procure transportation services worldwide over air, land and water. WebMethods makes business-to-business integration software. The webMethods technologies will let Logistics.com provide its customers with a fast, dedicated connection to the DTM, providing shippers and carriers with seamless, secure connections to their business partners over the Internet, the companies said.

Security by Committee: A Lose/Lose Proposition

An overengineered design derails a simple user request, but Jude gets thumbs-up for smart cards

I WAS LOOKING through the *Computerworld* Security Watch forums just before starting my column this week when I found this post from Neil Taylor: "If you want an effective security officer, you have to make damn sure [the security officer will] treat it as equally important to get information to those that need it as to withhold access from those that don't."

Absolutely spot on, Mr. Taylor. I agree that our job is not to get in people's way, but to help them achieve their business objectives in a secure fashion. Unfortunately, it doesn't always happen that way.

Security Manager's Journal

Security's Split Personality

My job can be divided into two parts: finding existing or potential problems, and fixing those problems. Despite the fact that it sometimes takes a great deal of specialist knowledge to find problems, I believe that fixing them is more difficult by far. Finding a practical solution that balances functionality and control — and then actually implementing that solution — always seems to be a much more difficult process than you would ever imagine.

Here's an example: One of our business teams gets regular data feeds from an external supplier. At the moment, the supplier sends this data over an Integrated Services Digital Network line, but for reasons of convenience, speed and reliability, the team wants it sent over the Internet.

We initiate all the downloads from our end, so we have control over what gets sent, and when and how it gets sent. And all of the data is in the public domain, so we really don't care if someone eavesdrops. This should make it very simple to secure.

Unfortunately, when the business team sends the request to IT audit and global IT security for approval, a long e-mail conversation starts. Gradually, every person who might have the faintest interest in the outcome — and an awful lot of people who don't — receive a copy of the message. As soon as one person suggests a possible solution, another points out some technical or procedural drawback that limits the security.

By the time this process of decision-by-committee reaches its conclusion, the solution that is being proposed involves changing the network topology, upgrading most of our firewalls and re-engineering the original application.

The resulting design is, admittedly, quite secure and would be extensible to similar cases in the future. But because it's so complex and would require so many resources, it would take months — if not years — to implement, even if there weren't a long list of other projects that take priority.

In the meantime, the business team that requested the change has given up on the whole idea on the grounds that it takes so much effort to get a straight answer out of the security department that it isn't worth doing.

Not an Isolated Problem

This is a classic example of a lose/lose situation. The business unit has lost out because it failed to get the improved functionality it wanted. The security department has lost out because the business is still using the old, insecure solution.

The problem doesn't seem to be limited to my company. I had a similar experience when I tried to view my United Air Lines frequent-flier account on the Web. I opened the account by filling out a paper form, and I received with my new account number an invitation to check my balance on the company's Web site.

However, the United Web site demanded that I reregister all my personal details in order to get an account on the company's servers, and it included the ominous warning that if I already have an account, all the personal details I register on the Web server must be identical to those I have already registered in the past.

If they've already got my personal details, why waste my time typing them in again? If they haven't yet, how are they going to check that the two sets are the same?

When I finally reregistered, I found out that I couldn't access the account until United mailed me an access code for validating the password that I had entered, which they required in order to verify that I'm the holder of the appropriate account on the Web site, which must be the same as the account that I was already given. Get it? To cap it all, this access takes up to five weeks to activate!

I can almost hear the security guy who dreamed up all these restrictions. I'm sure it's a pretty secure approach. But the frequent-flier scheme was designed to be a marketing program to attract and retain customers. Putting so many obstructive and unhelpful security precautions in the way has quite the opposite effect.

Yes, United needs security to prevent fraud, but that security should support the program's aims, not damage them.

A Green Light for Smart Cards

In a previous column, I mentioned my idea to use a smart card to control access to both our buildings and each user's PC, thus removing the need for those annoying, insecure passwords.

I spent a fair amount of time this week putting some flesh on the bones of the idea, writing up a project proposal and pitching it to management. Every manager I spoke with liked the idea and then referred it upward, so I ended up pitching it to the global chief technology officer, about five management levels above me. He was enthusiastic, so I have the go-ahead for the project.

The first step is the proof of concept. So far, I have only verbal assurances from the vendors that they can provide the main component: a proximity card for the doors to the building and a smart card for the PC itself, combined into one unit.

Also, I have only limited knowledge of how to integrate smart-card-based authentication into Windows 2000. Before I ask anyone to commit significant amounts of time, effort and money, I have to show that it can be done.

My goal for the next three months is to do all the background research, then produce one card that will give me access to one Windows PC and one building. Now I need to get my hands on some real hardware and software and start trying to make something work. Technical work, at last! ◗

THIS WEEK'S GLOSSARY

Integrated Services Digital Network (ISDN): A dedicated digital circuit available from telephone companies. ISDN provides a single network connection for a PC or other network device. Users generally pay a monthly fee plus usage charges. The circuit is relatively secure compared with running a virtual private network over the Internet, but the total available bandwidth for a basic circuit caps out at 128K bit/sec.

LINKS:

The following are some of the resources Jude is using as he researches his smart-card security project:

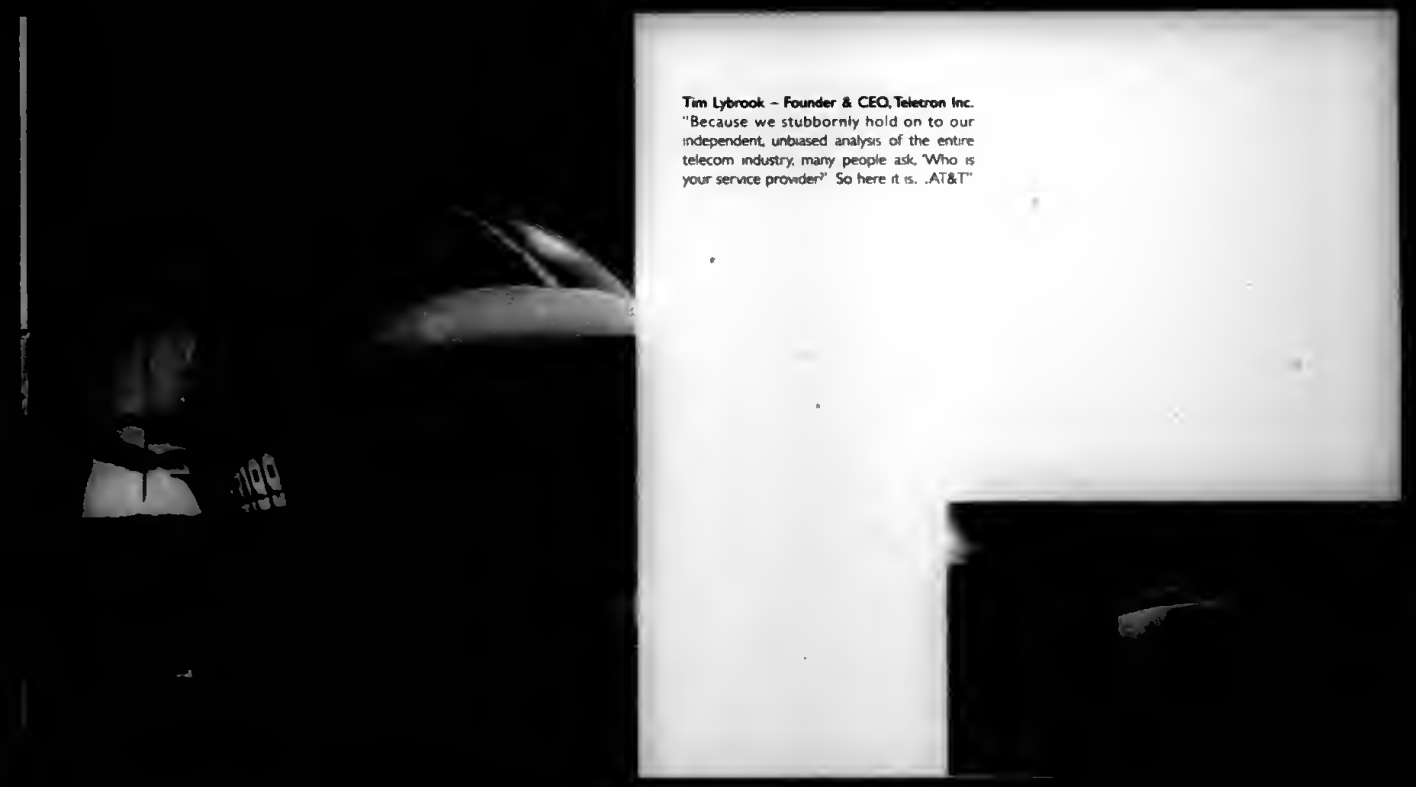
www.litronic.com/whitepaper/index.html: Irvine, Calif.-based Litronic Inc. is a provider of public-key infrastructure products and services. This white paper overview of smart cards is refreshingly clear and lucid – and an excellent place to start.

www.microsoft.com/technet/win2000/smtcard.asp: Another white paper, at the TechNet area of Microsoft Corp.'s Web site, offers details on the smart-card support included in Windows NT and Windows 2000 servers, including a description of related application programming interfaces and the Smart Card Software Development Kit. It also lists all the other members of the International Standards Organization's PC/SC working group.

www.wse.com: Honeywell Westinghouse Security Electronics' site includes information on physical access-control products, including proximity card systems, which use card readers and other devices to control users' physical access to building areas.

www.lne.com/ariam/mable-threat-model.html: Eric Murray, an independent security consultant, posted this academic paper on smart-card security threats on his personal Web site. The paper focuses on one specific intelligent card reader but also includes useful information on security risks inherent in different smart-card models and how to plug those holes to prevent attacks.

■ This journal is written by a real security manager, whose name and employer have been disguised for obvious reasons. It's posted weekly at *www.computerworld.com* to help you and our security manager – let's call him Jude Thaddeus – better solve security problems. Contact Jude at jude.t@ycos.com or click on *Computerworld.com*'s Security Watch community forum to participate in discussion topics.



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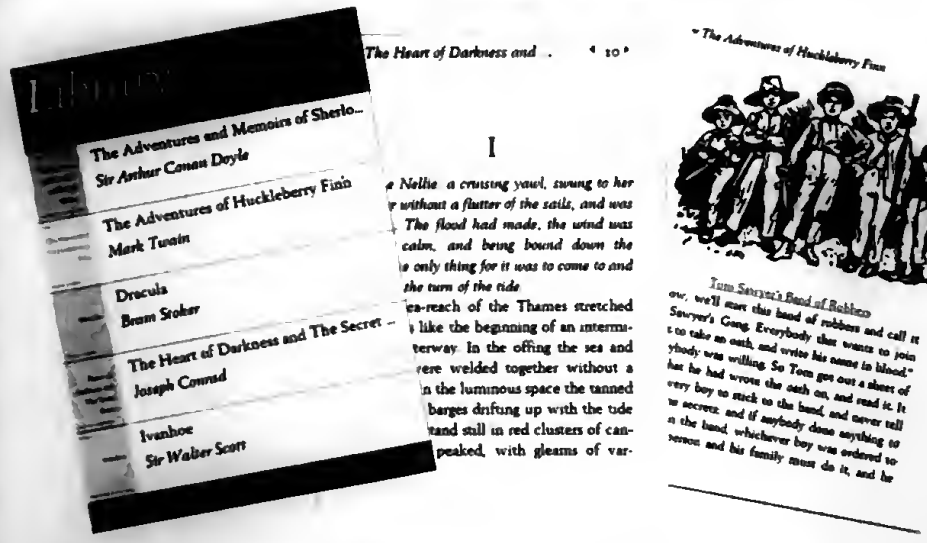

Copy Protection: Just Say No

Although technically excellent, Microsoft's electronic-book reader enforces some highly dubious restrictions on book buyers, including a kludgy setup procedure. All told, this product has been seduced by the Dark Side. By Russell Kay

LONGTIME *Computerworld* readers will know I have been an enthusiastic supporter of Microsoft Corp.'s electronic-book projects, including its ClearType font-rendering technology and Microsoft Reader software on the Pocket PC. Recently, Microsoft released Reader for the PC platform, and for the first time I learned the details of the company's copy-protection policy. ClearType's technological brilliance has been overshadowed by an irrational and unprecedented set of restrictions whose fairness is highly questionable.

After a simple 8MB download, nothing else is straightforward. After the setup finishes, you have to "activate" the program before you can purchase electronic books. The instructions say it's a "simple, one-click process that only needs to be done once for each PC." Well, to use the program, you need an account with Microsoft Passport, so I created one. In five minutes, I was back to Reader Activation, and I made that single click.

This brought up what looked like a Reader page but was really a browser window, and then downloaded a "Secure Repository" and an encrypted Activation Certificate that "certifies your copy of Microsoft Reader as being enabled for viewing protected content."

Microsoft then loads information about your system, including a computer hardware identification code. Microsoft says this "respects the privacy of information about your computer hardware" while still giving "access to many premium eBook titles that have been copy protected."

That seemed to be innocent enough. Then I saw this question: "How many computers can I activate Reader on?" Just two, it turns out; if you want more than that, you need additional Passport accounts. Now, with the gloves off, the iron fist is exposed: "However, if you purchase an eBook on a computer where you activated the Reader with your first Passport, you won't be able to read that title on a computer where the Reader was activated using your second Passport."

While this sort of limitation has technically been a part of end-user license agreements for years, it has been infeasible and politically difficult to enforce such constraints.

Now the limit can indeed be enforced technologically, and the restrictions are far more stringent. They don't even pass the commonsense test. This is exactly as if I had to register my CD players at the music store and, thereafter, I could play my discs on only those two players.

What happens when *Computerworld* replaces my laptop or I buy a new computer or replace a hard drive, and I can't read the books I paid for?

I visited *http://ebooks.barnesandnoble.com/ms_reader* to see how electronic books were priced. I compared prices for paperback, hardcover and electronic editions, and it became clear that electronic books won't save readers money. One book advertised there, Thomas Friedman's *The Lexus and the Olive Tree* (Farrar, Straus & Giroux Inc., 1999), is cheaper in print ($10.50, paperback) than as an electronic download ($15 for Microsoft Reader, $12 or $22 in other electronic-book formats). In fact, the $22 hardcover edition is no more expensive than some electronic formats, though obviously it costs the publisher far more to produce and the seller more to handle. Granted, you don't pay shipping on a download, but how often do you order just one book when there's a shipping charge?

Recently, I was at a dinner party that included Richard Stallman, founder of the Free Software Foundation, which supports the proposition that software — and by extension, many other forms of intellectual property — should be free. Stallman said he was disturbed by Microsoft's electronic-book initiative and its copy protection. I didn't like his argument and defended the software on its technical merits.

Now, with more data, I see that Stallman's concerns were right on the money. In my judgment, based on Microsoft's own explanation of its restrictions, this copy-protection scheme is conceptually flawed and will, in fact, put far more contraints on one who buys an electronic book than someone who buys the same title in print. That's crazy, which may be why publishers are rushing to jump on the copy-protection bandwagon.

During the early days of PCs, copy protection enjoyed a brief prominence, but it eventually failed; the market wouldn't stand for it. Back then, most software products were tools — a means to an end (e.g., a word processor or spreadsheet) — not the users' end products. Books are different; they are the end product.

A Cautionary Tale

Alexx Kay, a PC game designer (and yes, my son), says he has seen copy protection return to his industry with a vengeance. Most game manufacturers now use some form of copy protection. This creates all the classic problems we recall from the 1980s: It annoys most users, and it prevents many users with nonstandard equipment from using a legitimately purchased copy. Worst of all, copy protection doesn't slow piracy.

PC gamers don't want copy protection, just as book owners and libraries don't. Alexx notes that many game developers also don't want it, but publishers universally insist on it.

This could happen in book (and newspaper and magazine) publishing too, and that's a dismal, frightening prospect. I sincerely hope that Microsoft and its publishing partners don't make us travel down that copy-protection road and pay their stiff tolls. For now, I would rather hitchhike.

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Simple Object Access Protocol

BY PETE LOSHIN

LET'S SAY THAT YOU'RE building an Internet applicatioo service; customers interact with it by submitting information. Your servers process the data and return results to the customers. What's the best way to get that data into and out of your systems?

You could build a custom client/server application and require your customers to use the client software to access your service. But if you're doing business over the Internet, you have to build the client to run on all possible client platforms — Windows, Macintosh, Unix, Linux and more. That's a lot of clients to write.

How about using the Web? That works, but you're still tied to browser implementations, and you still have to build an infrastructure to send and receive input and output and to format and package that data for transmission. For a complicated application, you may opt for Java or ActiveX code, but then you start losing users to bandwidth and security issues.

What's needed is a simple protocol that makes it easy to package application data and send it back and forth across the Web, using the content-tagging language XML to ensure that both the sender and the recipient can easily interpret the contents of any messages. And using the Web protocol HTTP as the transport would eliminate the need for more firewall holes.

That pretty much describes Simple Object Access Protocol (SOAP) — a simple "glue" protocol that lets nodes remotely invoke application objects and return results. SOAP provides a lowest common denominator for applications to transmit messages: A client can send a message to invoke some program object, and a server can return the results of that invocation.

DEFINITION

Simple Object Access Protocol (SOAP) is an XML-based protocol that defines a framework for passing messages between systems over the Internet. It's typically used for executing remote procedure calls. SOAP was originally intended and defined for use on top of HTTP to make SOAP more easily incorporated into Web-based applications, but other transport protocols, such as SMTP, can also be used.

A SOAP Sample

▸ The following example illustrates a SOAP request called GetLastTradePrice which allows the client to request the last trade price for a specified stock.

```
POST/StockQuote HTTP/1.1
Host: www.stockquoteserver.com
Content-Type: text/xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: "Some-URI"

<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
<m:GetLastTradePrice xmlns:m="Some-URI">
<symbol>DIS</symbol>
</m:GetLastTradePrice>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

▸ The first five lines, part of the HTTP header, indicate the type of message (a POST), the host, content type and length and the SOAPAction header, which gives the intent of the SOAP request. The SOAP message itself is an XML document, with the SOAP envelope first, then an XML element that specifies the SOAP name space and attributes, if any. The SOAP envelope may include a header (though not here), followed by a SOAP body. In this case, the body specifies the GetLastTradePrice request and the stock symbol for which the last trade price is requested. A response to this SOAP request might look like this.

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset="utf-8"
Content-Length: nnnn

<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
<m:GetLastTradePriceResponse xmlns:m="Some-URI">
<Price>34.5</Price>
</m:GetLastTradePriceResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

▸ Again, the first three lines are part of the HTTP header. The SOAP message itself consists of an envelope that contains the response to the original request, labeled GetLastTradePriceResponse, and includes the value returned, in this case 34.5.

SOAP is pretty simple: Messages are just XML documents that cootain SOAP instructions. Though in theory, SOAP can be bound to any applicatioo transport protocol, it's commonly used with HTTP.

Kennard Scribner, co-author of *Understanding SOAP: The Authoritative Solution* (Macmillan USA, 2000), explains that SOAP works by converting method-invocation information such as argument data and transaction identifiers into an XML format.

The data is encapsulated into HTTP or some other transport protocol and sent to its destination, which is usually a server. That server extracts the SOAP data, does the requested processing and returns the results in a SOAP reply.

Scribner says, "SOAP acts as a remote-procedure call protocol, much like Java's Remote Method Invocation protocol or the CORBA's [Common Object Request Broker Architecture] General Inter-ORB Protocol."

Scribner says that because HTTP and XML are widely implemented, SOAP is "probably the most highly scalable [remote-procedure call] protocol yet invented." And yet, he adds, "SOAP is not designed to act as a complete object-based architecture."

SOAP doesn't replace Java's Remote Method Invocation protocol, Distributed Component Object Model and CORBA; it provides a framework for using any of those models. SOAP isn't a complete solution: It doesn't handle object activatioo or security. Scribner says the SOAP architects "clearly believed you would add that code yourself," layering it on top of SOAP, rather than making it a part of the protocol itself.

The illustration at left includes an example taken from the SOAP 1.1 specification, in which a host requests a stock price from a quote service. The SOAP request is embedded in an HTTP POST, and the body of the request indicates the request type and a parameter — the stock symbol. The response is also an XML object encapsulated in an HTTP response, with a single returned value — 34.5 in this case.

What's Special About SOAP?

With SOAP, developers can roll out Web services as quickly as they can build SOAP messages for program calls to existing applications and theo embed those applications in simple Web pages. But developers can also use SOAP calls in dedicated applications, and they can build applications that can be dragged onto other people's Web pages instead of requiring time-consuming and costly development.

Mark Stiver, co-author of *Understanding SOAP*, says that this is exactly Microsoft's goal with Microsoft .Net. Stiver explains, "This is where SOAP really shines. It lets developers make sound choices about how they should build applications, without having to worry about incompatibilities." ◗

Pete Loshin (pete@Internet-Standard.com), a consultant, has written more than 20 books about the Internet.

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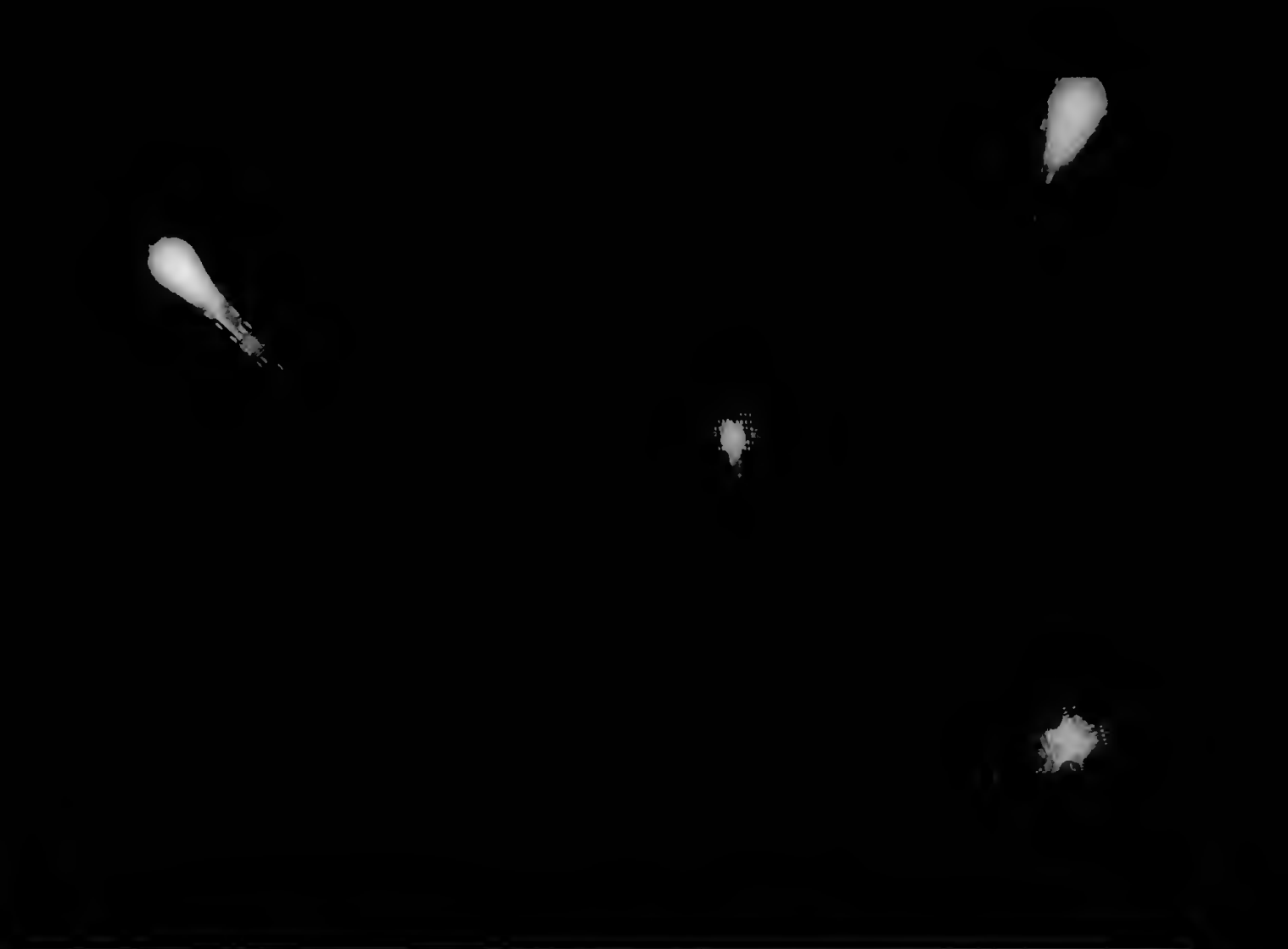

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TO THE RESCUE: A robot takes part in the first competition for search-and-rescue robots, held July 30 in Austin, Texas, during a conference of the American Association for Artificial Intelligence

Heading for Disasters

Robots are being developed to perform search-and-rescue missions at the scenes of natural and man-made catastrophes. By Barbara Forster

THE NEXT generation of search-and-rescue workers looking for victims in buildings that collapsed in earthquakes or explosions will slither through eight-inch ducts, navigate dark, rubble-strewn corridors and be tossed into third-floor windows. They will be impervious to pain, fire and water. They will be robots — autonomous and mobile.

Industrial robots have been used successfully for decades, but their descendants will be a relatively new breed with sufficient intelligence to carry out complex tasks, including planning and decision-making in unstructured and dynamic environments where missions are time-critical.

"They won't be Rosie the Robot generalists," says Alan Schultz, head of the Intelligent Systems Section at the Washington-based Naval Research Laboratory (NRL), referring to the character from *The Jetsons*.

But whether the robots are rumbling Rosies, snakelike or rodent-size, they will think and, most important, relay information to human rescuers. Researchers have already found ways to create the necessary artificial intelligence.

Take, for instance, the ability to report locations, which has been a robotic catch-22: In order for a robot to add its "perceptions" to a map, it needs to know its location. But for a robot to determine its location, it often needs a map.

The answer lies in programming that provides localization capability based on a given environment by correcting localization estimates incrementally and on the fly instead of waiting until an unacceptable error level is accumulated. Navy researchers say the errors are small, so fast correction techniques can be used.

The Global Positioning System is also part of the action, as are inertial measurements, gyroscopes and lasers. "We can fuse six or seven relatively cheap sensors together to buy us reliability," says Lt. Col. John Blitch, program manager at the Defense Advanced Research Projects Agency's (DARPA) Advanced Technology Office in Arlington, Va.

Nonexpert End Users

Simplifying techniques to guide robots during searches is another goal because operators will be search-and-rescue staff rather than robotics specialists. "We'd like to have one technician working with 10 robots," says Schultz. "So we need to be careful how robots interface with workers. It can't be a complicated connection." With joysticks and keyboards ruled out, voice-recognition technology and touch screens are the most likely options.

Robots must have humanlike sensory functions in order to recognize visual, acoustic, tactile and thermal cues and then determine whether they originate from humans or inanimate objects.

That collaborative sensory conclusion is a difficult but necessary leap to knowledge representation, explains Adam Jacoff, a mechanical engineer in the Intelligent Systems Division at the National Institute of Standards and Technology (NIST) in Washington. Once robots understand what they "feel" or "see," they can "plan."

The bottom line, says John Evans, director of the Intelligent Systems Division at the NIST, is that robotic rescuers must be able to "separate sense perception and planning from navigation."

The next goal is to create robots that have adjustable autonomy — the ability to process data and make decisions without direction from a human operator.

"They need to know to go further, without instruction, when they see important clues: it's a school, the cafeteria is 40 feet ahead and the earthquake happened at lunchtime," says Jacoff.

Robot collaboration, which is the ultimate goal, would involve specialization and information sharing. For example, one robot would find a blocked passage and relay the message to other robots. Or robot teams could apply the "marsupial approach," in which larger units carry smaller ones designed for specific tasks such as locating people trapped in shifting debris. Others could deliver radios and water to victims.

Standardized measurements are also needed to create smart machines.

"Researchers have identified artificial intelligence in the abstract," says Evans. "But like any other engineering project, to build efficient machines, we have to have quantitative measurements."

The NIST, the NRL and DARPA are working together to address that problem. NIST engineers recently built the first standardized test course, an urban disaster scene, to establish performance metrics that would allow the reuse of algorithms and other system components. Researchers have taken the portable ruin on the road; they plan to share ongoing test results with robotics teams everywhere.

Test Course

The test course, which is approximately 60 square feet, has three increasingly difficult modules, each a maze with "human" targets. Each area demands increased mobility, such as the ability to climb piles of debris, stairs and ramps, and sensing capabilities. The easiest has a flat surface, pieces of overturned furniture, open doors and jutting walls. The two-floor intermediate stage has ramps, stairways and holes to fall through. Level 3 simulates a collapsed building complete with a section of floor propped perilously on piles of debris amid jumbles of boards and pipes.

Creating artificial intelligence is the carrot for these researchers, but saving human lives is the true goal. The 1995 earthquake in Kobe, Japan, killed more than 5,000 people and injured another 35,000; 168 died in the 1995 terrorist bombing in Oklahoma City.

"We must balance between saving people and putting fully functioning rescuers in harm's way," says Jacoff. "We can send robots into the most dangerous and confined spaces. They are expendable."

Forster is a freelance writer in Boston.

IN THE RUBBLE: A robot navigates the NIST's urban disaster test course during the competition in Texas

WIRELESS INSECURITY

Sure, it's tough to ensure the security of wireless transactions. But it can be done if you pay attention to authentication and end-to-end data encryption.

By Matt Hamblen

EVERY BUSINESS should be lucky enough to get a visit from a friendly hacker like Jeff Schmidt.

On July 27, Schmidt tried out a brand-new wireless LAN card on his laptop at work. He didn't expect anything to happen, because his organization's wireless LAN wasn't up and running yet. But to his surprise, he was able to connect without any trouble to the network of an office down the street.

Oops.

Rather than swipe passwords from the other office's domain name server, Schmidt called the office to warn it. It shut down its wireless hub shortly thereafter, he says.

Schmidt, a network engineer at the U.S. Department of Agriculture in New Orleans, provided printouts of his communications with the other office, which he declined to name.

"Imagine our surprise when their hub instantly returned my signal," Schmidt says. "Since the other office was still using the factory defaults on its wireless hub, I connected just fine. No hacking, no planning — just plain, dumb chance."

Chance played a key role in Schmidt's penetration of an outside network, but analysts say wireless LANs can be easily accessed by neighbors — friendly or not — and need strong protection.

According to analysts, information technology managers can provide robust security by making sure wireless users are authenticated, preferably with a user name and password as well as a token. They also say encryption should be used end-to-end in a connection.

Security can even be made strong enough to allow purchases or money transfers over the Web, banks and retailers say.

SECURE – FOR NOW

"We feel very comfortable with our wireless security, and we feel our equipment is secure," says Mark Ebel, director of digital communication services at BestBuy.com, a division of Best Buy Co. in Eden Prairie, Minn.

"However, we do believe we have to get better at security than today's approach, because if we don't do something, we know the hackers will find ways to get better," he adds.

BestBuy.com is about to launch wireless purchasing on its Web site. The system has worked well in tests but hasn't been launched yet because the company has been tweaking other features of the site that aren't related to security.

Banks such as Wachovia Corp. in Winston-Salem, N.C., are confident enough about wireless security to plan a rollout of banking services for consumers and businesses by year's end [News, July 17].

One group that has already gone wireless is 500 attorneys at Paul Hastings Janosky and Walker LLP in Los Angeles. The lawyers send e-mail wirelessly via Research in Motion Ltd. (RIM) BlackBerry personal digital assistants, which resemble pagers with small keyboards. They started using the devices last October.

"They have been an invaluable tool for the lawyers, and a lot of them travel," says Mary Odson, CIO at Paul Hastings. "We carefully evaluated the RIMs and the network, since security with legal matters was one of the most important components."

BANKING ON WIRELESS

Encrypting connections from end to end requires a developer to consider every device used to access a network, users and analysts say. In addition, the security standards of each wireless network carrier must be understood.

To deal with this complexity, Wachovia chose 724 Solutions Inc. in Toronto to help it develop wireless banking applications, says Lawrence Baxter, head of e-business at Wachovia.

But when Fidelity Investments in Boston started making wireless transactions in 1998, applications had to be built in-house because the technology was still relatively rare, as was outside expertise in it, says Joe Ferra, senior vice president of Fidelity Online Brokerage, which has more than 70,000 wireless users on various devices.

Ferra says that as a result of internal evaluations and reports in the security community, Fidelity doesn't trust the current Wireless Application Protocol (WAP) standard, known as WAP 1.1, for wireless transactions. Instead, Fidelity relies on encryption and authentication developed using the Handheld Device Markup Language.

Many analysts say they agree that WAP 1.1 presents problems, because a wireless transmission is vulnerable to a hack at the WAP gateway server. Under the current standard, the WAP gateway server sits inside the premises of the wireless carrier.

Three analysts — John Pescatore at Gartner Group Inc. in Stamford, Conn.; Alan Paller, director of research at the SANS Institute in Bethesda, Md.; and Alan Reiter at Wireless Internet and

RIM 950 Wireless Handheld

> We feel very comfortable with our wireless security, and we feel our equipment is secure. However, we do believe we have to get better at security than today's approach.
>
> MARK EBEL, DIRECTOR OF DIGITAL COMMUNICATION SERVICES, BESTBUY.COM

Mobile Computing in Chevy Chase, Md. — say there's a small but real threat that a sophisticated hacker could enter a WAP gateway server to steal data. That's because the gateway server decrypts the wireless transmission for a moment before re-encrypting it for the wired network.

However, Phone.com Inc. in Redwood City, Calif., a founding member of the WAP Forum, argues that despite this possibility, the level of security is "really quite high," says Roger Snyder, senior product manager at Phone.com. It's high enough, he notes, for the Bank of Montreal in Toronto, Amazon.com Inc. in Seattle and others to have launched wireless transaction services.

Pescatore and other analysts say WAP 1.3, which is scheduled to be available next year, will eliminate the decryption pause. According to Snyder, a WAP proxy server in a bank or other business will tell a wireless network server that a user was authorized to do business directly with the bank's server.

Sabre Holdings Corp. in Fort Worth, Texas, announced a service last month that will give travelers wireless access from any device, says Cindy Groner, director of wireless services at Sabre. To avoid problems with WAP 1.1 or other vulnerabilities, she says, none of the user's credit information is passed over the wireless network. Instead, it sits on the Sabre back end.

WIRELESS REAL ESTATE

At Colliers Arnold Commercial Investment Brokerage in Tampa, Fla., testing is under way to provide agents with wireless access to proprietary information on commercial real estate properties, says CEO Lee Arnold.

Colliers Arnold is using Palm VII handhelds operating on Santa Clara, Calif.-based Palm Inc.'s Palm.net network, which uses a proprietary algorithm to encrypt data throughout the transaction, Arnold says.

The other main vulnerability of wireless transmissions, analysts say, is the lack of authentication — ensuring that a user is who he says he is.

Analysts say they worry that user names and passwords don't provide sufficient security, especially for sensitive information. Analysts and customers considering wireless banking say they're looking forward to the day when smart phones come equipped with a separate token, such as a smart card, to authenticate a user's identity. So far, banks aren't using a separate token device and instead are depending on digital certificates for wireless authentication, analysts say.

Some cell phones on the market today include Subscriber Identify Modules (SIM), which will work with later versions of the WAP specification to create what's called a Wireless Identity Module (WIM). That WIM will store a digital certificate and its associated private key.

Visa International Inc. in Foster City, Calif., is working with phone maker Nokia Corp. and Meritanordbanken Group, both in Finland, on a phone that includes a slot for a SIM identification device.

Pescatore says this technology is of limited use, since anyone who has the phone can pretend to be the legitimate user if he also has the personal identification number (PIN) to activate it.

In lieu of authentication with a token, the handhelds from RIM in Waterloo, Ontario, require a user name and new password at set intervals. Perhaps a more important protection, says Odson at Paul Hastings, is that employees know they shouldn't be putting confidential information in e-mail messages anyway.

Analysts say authentication will improve as biometric devices such as fingerprint readers are used instead of PINs, but such devices won't be common before 2004.

AVOIDING TROUBLE

Pescatore says the absence of authentication technology means IT managers must depend on user names and passwords. Because cell phone keypads make it hard to enter alphabetical passwords, IT managers should require longer numeric sequences than they're used to and update them frequently, analysts say.

Pescatore urges IT managers to invest in intrusion-detection software for all servers exposed to wireless applications, such as the New Orleans network Schmidt stumbled into with his wireless LAN card. Specifically, the office Schmidt entered should have put its wireless adapter on a LAN switch on a separate segment and not on a hub.

But even some companies that are moving bravely to wireless e-commerce realize the limitations on security. "We are very concerned about mobile Internet security, period," says Joe Chouinard, vice president of new e-commerce channels at Visa.

Know Who You Know

LAST SUMMER, a researcher asked the head of a small San Francisco media company — let's call him Gary — a simple question: "Who are all the people in your office space, and why are they here?"

Easy question, right? Not even close. On any given day, there were 12 full-time employees, two new freelancers, two long-term freelancers and one client at Gary's firm, which designs Web pages and graphical interfaces for computer games.

The client came in at the start of a project — and stayed. He used one of Gary's conference rooms to hold meetings for his other projects so he could avoid a commute — and his boss, Gary says with a laugh.

Others on Gary's staff telecommuted, using e-mail to keep in touch. One animator just used the telephone and surfaced only to drop off drawings. Others were juggling various things at once: One coordinator was taking over information systems, and a freelancer valued for her ink and paint talents was helping with project coordination.

If this sounds maddening for everyone to track, you're right. If tracking everyone seems necessary, you're also right, because these days, your social network is crucial to finding new employees, helping you keep your job or finding a new one.

With that in mind, two researchers at Florham Park, N.J.-based AT&T Labs — design anthropologist Bonnie Nardi, who works in Menlo Park, Calif., and interaction designer Steve Whittaker, who works in Florham Park — are designing software to help individuals tame their social networks.

Dubbed "ContactMap," the planned software will be part alternative computer desktop, giving users access to various types of communications, and part information index, for reconstructing previous conversations, e-mails and swapped information.

If successful, the software will dramatically reduce the effort it takes to track and maintain contact with a social network. The current prototype is written in Java and runs on Windows. The creators are hoping for a full prototype by December, and if AT&T moves forward with it, the software could be released as early as next year.

Welcome to the New Economy, where skills are useful, but maintaining a good network might be the most important skill of all.

Networks don't end within a company's walls: Many times, individuals band together in so-called communities of practice — collections of individuals doing similar jobs in different organizations who can help educate one another, find one another jobs and serve as impromptu support groups. These communities aren't confined to the workplace.

At least, that's what the anthropologists found when they studied 22 people in 12 different organizations during the past two years. "People said they spent a lot of time maintaining their social networks," says Nardi. In today's workplace, "with the threat of reorganizations, layoffs and business failures, people are thrown back on their own resources" to succeed, she says.

But technology was making that increasingly difficult, researchers found. Each new way of communicating seemed to add another layer of complexity — should you use instant messaging or someone's mobile phone number? At the same time, people were driven by "the need to keep up" with the latest technology, says Heinrich Schwarz, an MIT graduate student who helped conduct the research.

Human-centric Thinking

The research turned up other interesting facts: Even after years of using graphical interfaces on Windows and Macintosh computers, users still don't think about their information in terms of files and folders, notes Whittaker.

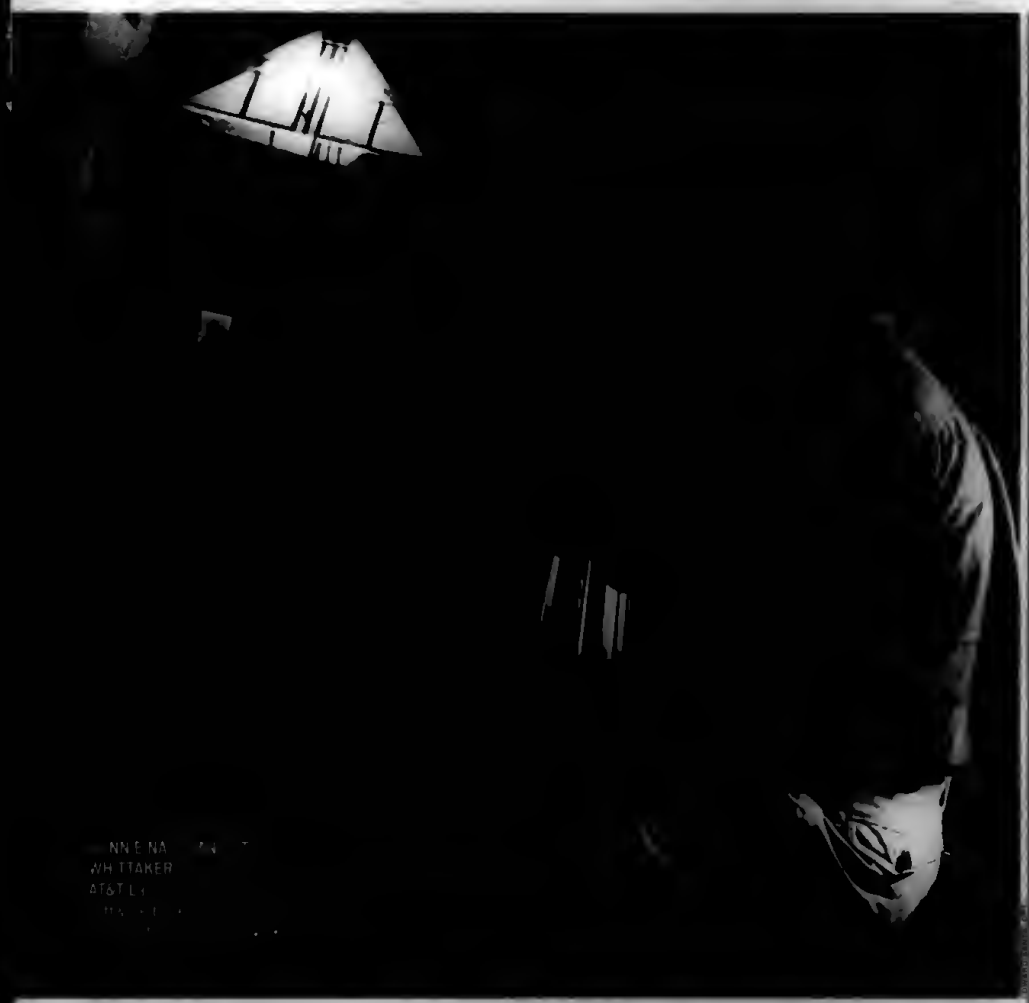
"If you talk to the average user about how they do all their work, they talk about things in much more personal terms: 'So-and-so sent me a document; I need to get back to this other person; I need to get copies to this other person.' There's this very human-centric way of thinking about information," says Whittaker.

So the researchers decided that ContactMap's principal indexing mechanism wouldn't be a list of e-mails or surnames but rather groups of faces.

The idea was also partly driven by biology.

"A huge proportion of our brains is given over to the recognition of faces. There's research that shows that infants a few hours old recognize the face as a distinct object. This is something that's quite primitive, but there are no computational systems that are organized around the principle of people," says Whittaker, a child psychologist by training.

Why don't more contact management programs use pictures of people? Whittaker says that until recently, image file sizes and processor power made it difficult.



New software aims to help you track your 'social network' – the people who really help you do your job and find your next one. By Mathew Schwartz

"The key phrase is that ContactMap is people-centric," says Nardi. "Throw away the folders and bring in the people."

Face to Face

The current prototype nf the ContactMap desktop has two frames.

The larger frame shows a number of faces brokeo into differeot clusters or groups such as work, family or PTA.

Each group has a different color background. If there isn't a picture of a person, a graphic "node" such as a cartoon image nf a person's face can be substituted.

By scrolling a smaller frame on the slde, a user can view specific information for each contact, such as addresses, telepbnne numbers and titles. That frame has a search capability as well as a list of all the groups the user has created. Clicking no nne nf the groups brings up the faces of the members of that group in the main frame.

Tn e-mail, instant message, videoconference or phone a contact, the user clicks no that person's face and then chooses the medium through which be wants to be connected.

Another view yet to be developed will summarize the user's interaction with a person, giving a list of e-mails, documents swapped and date and times when he previously used ContactMap to call someone nr when he received calls.

Technology Hurdles

This assumes, of course, a level nf computer telephony and software integration higher than what is generally available. That's only one of the significant technology hurdles to overcome.

To make it easy for users to start using ContactMap, Nardi and Whittaker say they want the program to import information from existing e-mail and contact management programs and suggest which groups people should belong to. But that feature is yet to come.

ContactMap must also work transparently with a variety nf operating systems and software such as e-mail. Unfortunately, many vendors don't make it easy to interoperate with their software, even though application program interfaces are theoretically supposed to do that.

The program must also interface with computer telephony and videoconferencing. "Anything that involves communication and computing is extraordinarily complex," Whittaker says.

Witbout proper planning, new technology — such as ContactMap — can also have detrimental effects on its users, as Nardi argued with co-author Vicki O'Day in *Information Ecologies* (MIT Press, 1999).

For instance, at one hospital profiled in the book, neurophysiologists had microphones and video cameras installed in operating rooms so they could remotely monitor several neurosurgeries at once, since their physical presence wasn't always required.

Though it made their jobs easier, it also created privacy concerns among the doctors and technicians, who used jokes and off-color banter to ease the stress of the delicate operations, which could last up to 24 hours.

So, too, will there be privacy and security concerns with ContactMap, as Nardi readily acknowledges. "Once you have your map, it's very revealing, very visual, and people can come into your office and look at a glance. It tells a lot about you," she says.

To be really effective, a Web version (which is planned) will be necessary for users to access their social network at anytime over any device.

But this raises the question of who gets to see what information. "You want to be able to share some stuff," but not everything, says Nardi. How do you tell the program which things to share, such as pictures, and with whom? "We have to work through those issues," she says.

NetScaler Makes Fast Server Connections

Start-up tweaks TCP/IP for faster, more efficient server performance

BY AMY HELEN JOHNSON

AT CASHSURFERS Inc., a Bakersfield, Calif.-based company that rewards Internet surfers for looking at banner ads, the server farm delivers 1 billinn banners per month to registered users. In order to expand the server farm's capacity without building a monster pool of computers, Chief Technology Officer Noah Mapstead turned to the WebScaler Internet accelerator from NetScaler Inc. in Santa Clara, Calif.

NetScaler is the first company to market a new kind of acceleration technology, says Michael Hoch, a research analyst at Aberdeen Group Inc. in Boston. WebScaler takes on the TCP/IP overhead that results from the housekeeping tasks needed to open and close individual client sessions, freeing Web servers to deliver the requested content.

A Step Ahead

CEO Michael Susai says NetScaler has a big head start on other companies that might want to take this approach to Internet acceleratinn. "We believe that we are at least two years ahead [of the competition]," he says. He cites Exodus Communications Inc. in Santa Clara, Calif., and any large switch maker, like Cisco Systems Inc. in San Jose, as possible entrants to this market.

One key benefit NetScaler gives its customers is the ability to cost-effectively scale their Web sites. Since WebScaler went online at CashSurfers in January, the server farm has doubled its capacity from about 20,000 to 40,000 concurrent connections, without any additional server hardware, says Mapstead.

He says he figures he has saved at least $35,000 on hardware alone, plus the additional fees he would have paid to the company's co-location service provider. CashSurfers runs its site on rack-mounted dual-processor Intel Pentium III 550-MHz machines with 512MB of RAM, running Windows 2000.

CashSurfers' Web site is a good candidate for WebScaler, Mapstead says, because it serves the same small piece of data over and over. "It's a large number of requests, but it's a small request," he explains. That means the Web servers spend a proportionally large amouot of time creating and destroying connectinns, which is an expensive process.

In short, WebScaler gives CashSurfers more bang for the buck from its servers, says Mapstead.

WebScaler also works well oo problems such as building capacity for usage spikes, says Hoch. A WebScaler installatioo eliminates the need to build a largely underused server farm just to ensure service during short periods of time when traffic peaks, he says.

One type of Web content that WebScaler won't help, says Hoch, is streaming media. Static content that needs to be delivered quickly is its forte. With dynamic pages — ones that are created on the fly from elements stored in databases — WebScaler makes delivery more reliable but doesn't necessarily enable the site to serve the pages to more users, he says.

It's difficult to compare NetScaler to its competitors, says Hoch, because the company has come up with a true technical innovation. There are other types of Internet accelerators, though, that take a different approach. A common strategy is to use a load balancer, which parcels out client requests evenly over a server farm, making sure no machine becomes overwhelmed.

But a load balancer doesn't have to he an alternative to WebScaler, points out Mapstead. His infrastructure also includes a load balancer — Web Server Director Pro Plus from Radware Ltd. in Tel Aviv.

Mapstead says he would like to see a product that combines the features of a load balancer and a transaction manager. Although WebScaler has worked flawlessly in combination with the Radware load balancer, Mapstead says he would prefer to simplify his architecture.

That's a valid goal, says Peter Firstbrook, a research analyst at Meta Group Inc. in Stamford, Conn. The more devices a company strings together, the greater the chances of failure, he says. Plus, today's load balancers have better management consoles, administration features and reporting functions than WebScaler, he says.

Susai says WebScaler's redundant architecture protects against a catastrophic failure. But he acknowledges the value of a combined WebScaler and load balancer, which is in the works, he says.

NetScaler is operating in the red but plans to be profitable within two years. Susai declined to release revenue figures, but the company has convinced investors that it will succeed: It has received $15 million in venture funding.

MICHAEL SUSAI, president and CEO, claims that NetScaler's Web accelerator technology gives a two-year lead over competitors

NetScaler Inc.

COMPUTERWORLD emerging companies

Location: 4800 Great America Parkway, #305, Santa Clara, Calif 95054

Telephone: (408) 330-9200

Web: *www.netscaler.com*

Niche: Software accelerates Web site performance by making TCP/IP connections more efficient.

Why it's worth watching: In some cases, Web site administrators can increase traffic without adding hardware.

Company officer:
- Michael Susai, founder, president and CEO

Milestones:
- December 1997: Founded
- May 2000: WebScaler debuted

Employees: 70; 100% annual growth rate projected

Profitability date: Anticipated within two years

Burn money: $15 million from Gabriel Venture Partners and Credit Susse First Boston

Product/pricing: WebScaler, $40,000 per server or dual-server redundant configuration

Customers: Bargain America Corp., CashSurfers Inc. and MarchFirst Inc.

Partners: GlobalCenter Group, SiteSmith Inc. and ServerVault Inc.

Red flags for IT:
- Sites with high traffic growth should expect to invest in load-balancing hardware as well.
- Performance benefits don't extend to streaming media.

[the buzz
STATE OF THE MARKET]

It's All in the Connection

Web site managers use three different strategies to speed up their sites or add more capacity, says Peter Firstbrook, a research analyst at Meta Group Inc.: They're adding hardware,doing load balancing or tuning servers. The first is the brute-force method of expanding capacity, while load balancing and server tuning improve the performance of existing resources. WebScaler falls into the latter category. It boosts connection speed, which is an approach no other product takes today, says Firstbrook.

NetScaler calls its underlying technology, which exploits the nature of TCP/IP, Web Transaction Management (WTM). Each time two computers decide to communicate, TCP/IP dictates that they first must send several messages back and forth to identify themselves and agree to the data transfer. TCP/IP requires a similar set of messages to close the connection. WTM processes these handshaking messages.

Web Legacy

Handshaking overhead is the legacy from the early years of the Internet, then called the Arpanet, says NetScaler CEO Michael Susai. TCP/IP was designed to be a "connectionless" protocol: the handshaking phase established temporary links for the time period during which the computers needed to communicate. Because Arpanet traffic consisted mainly of large data files, the overhead was insignificant.

But today's Internet traffic consists of numerous, small data transfers, says Susai, and a single Web page – with a banner ad, navigation box, text, graphics and so forth – can generate a dozen or more connections and a lot of handshaking overhead.

The WebScaler server sits in front of the Web server and establishes a permanent connection to it. It goes through the handshaking phase once and then maintains the connection. When page requests come in, it combines them and passes them to the Web server, which can devote CPU cycles to delivering Web content rather than to opening and closing connections.

"It's a bit of a kluge, but it does work," says Firstbrook. The idea behind WTM is the same as the one used in databases, he points out, when a connection is kept open and multiple SQL requests are fed into it. Applying it to the presentation tier of a Web site is a logical extension of current Internet architectures, he says.

– *Amy Helen Johnson*

An OLTP database might work for data warehousing,
if you don't have over five simultaneous users.
But is there growth in your company's future?

DO YOU KNOW

DO YOU KNOW

DO YOU KNOW

NCR

Title Wave

E-commerce is producing a variety of new IT jobs, especially at consulting firms and dot-coms. But just what do these new titles mean? By Zachary Tobias

WHAT'S IN A name? It's becoming hard to tell. Just as information technology continues to revolutionize how companies do business, it also affects the way they divide responsibilities among their employees.

While some companies keep traditional IT job titles even though the tasks attached to them have changed, others are creating new roles altogether.

To fill them, managers are now seeking candidates who command both technical and nontechnical skills. "Business acumen and communication skills are becoming increasingly important," says Heinz Bartesch, director of recruiting at Professional Consulting Network Inc. in San Francisco. "It's rarely enough just to be able to sit down and code."

Here's a look at some new positions that require a mix of skills, and some insights from the people who have them.

Chief Knowledge Officer

FutureNext Consulting Inc.

"What's really important to a business? I think it's knowledge," says Bill Sbeleg, chief knowledge officer at McLean, Va.-based FutureNext, a 400-employee e-commerce consulting firm.

As chief knowledge officer, Sheleg ensures that his entire company benefits from the experieoces of its individual parts and tbat FutureNext's consultants work with clients according to a standard set of best practices.

To do this, he leads monthly meetings and uses video and Internet conferencing to connect co-workers whose offices are spread out nationwide.

Sheleg also administers FutureNext's knowledge management system, KnowledgeNext, a database that allows employees to share reports.

Approximately 25 years in IT consulting have given Sheleg plenty of technical knowbow. But he stresses the importance of "understanding business processes and how to document them and make them repeatable."

Exchange Director

IQ4hire Inc.

IQ4hire in Chicago matches companies that want to buy IT systems with those that sell them. As exchange director, says Todd Schreiner, his role is to "remove the pain points" of the process. He makes sure buyers understand what they're buying and how to use it and helps sellers tailor their products to their buyers' needs.

A typical day for Schreiner might involve visiting a company that has just bought a system or facilitating a conference call between buyers and sellers.

The job requires communication skills and "someone who has a significant amount of seasoning in both IT and business," Schreiner explains. Eight years as an IT consultant at Cbicago-based Andersen Consulting gave him such a combination.

One of the rewards of his position, he says, is being able to bridge the communication gaps he encountered as a consultant. The job "allows me to help solve a problem I once had to deal with on the back end," Schreiner says.

Chief Privacy Officer

DoubleClick Inc.

Last year, New York-based Internet advertising firm DoubleClick came under scrutiny from consumer groups and the Federal Trade Commission when it made plans to match Internet user profiles with names and street addresses in an off-line marketing database.

In March, the firm backed off from those plans and hired New York consumer affairs commissioner Jules Polonetsky to fill the newly created position of chief privacy officer. However, the role isn't unique to DoubleClick.

"There [is] an increasingly wide range of companies that need to make decisions about privacy," says Polonetsky, noting that both large corporations and small start-ups are creating positions like his.

As chief privacy officer, Polonetsky makes sure DoubleClick lives up to its own privacy standards, by reviewing the company's major transactions. He also responds to consumer concerns and the media and represeots DoubleClick in meetings with government officials to set new privacy standards.

"To bring consumer sensibilities [to the job] is incredibly useful," says Polonetsky. "The key is that it is a person who communicates with customers, even for a business-to-business company." In order to "translate bits and bytes to laws and language," technological aptitude is also a must, he says, though be had no prior IT experience.

"You need to be able to move fast and to think fast," Polonetsky says, since "every new [technological] model raises different [privacy] issues that a business needs to address."

Director of XML Technology

Bowstreet Inc.

Bowstreet is a provider of infrastructure for business-to-business Web marketplaces. The Portsmouth, N.H.-based company's Web Exchange is an Internet community wbere businesses can exchange Web services and, with Bowstreet's Web Factory, customize those services for their own needs.

Since the infrastructure is XML-based, it's essential that Bowstreet's employees, as well as its partners and clients, have up-to-date knowledge of the content-tagging language. So Bowstreet hired James Tauber to serve as director of XML technology. Tauber has beeo involved in developing XML since he taught Web development to university students in the mid-1990s.

Now, Tauber trains everyone, from engineers at the company to customers who have no computer background. He also does tactical research on XML-related technologies and advises Bowstreet's product development and marketing teams.

Tauber says communication skills and "being able to jump back and forth very quickly between technical and business-oriented types of activities" are crucial to his job.

Tobias is a freelance writer in Santa Cruz, Calif.

IT Careers in Washington, DC

Stretched around the Beltway of Washington, DC is an information technology corridor. While it offers some of the best challenges in the new e-conomy, it also provides IT professionals with access to Washington, Baltimore, Annapolis and the culture-rich rural hills of northern Virginia.

The career challenges are many, from the basics of creating the IT infrastructure that runs the country to the latest in web-enabled developments.

Advanced Technology Systems, Inc.
McLean, VA

For more than 20 years, Advanced Technology Systems has introduced new technologies and installed them for federal government agencies.

"The technology has changed constantly over the years," says Leon Perry, corporate vice president. "The technology improves and new tools are created. We have seen the government shift away from pure application development to buying commercial off-the-shelf packages and integrating them into their infrastructure. Today, we're working to web-enable applications and make them available to government business partners via the Internet."

ATS is creating new web sites, establishing mechanisms to provide data from old legacy systems to users that may be anywhere in the world. "To accomplish this, we need people to develop web applications, who have expertise with products like Cold Fusion, who have worked with Active Server Pages, HTML, Visual Basic and other web development tools," adds Perry.

Employees constantly upgrade their skills through technical training opportunities, tuition reimbursement and work alongside senior technical people who are considered experts in their fields. During the first six months of employment, successful applicants are assigned to project teams and receive up to 40 hours of training specific to the projects that they have been assigned.

"Our rate of attrition is well below the industry average," says Perry. "We emphasize the role employees have in making decisions that effect the business and the individual. The ATS culture makes this a good place to work, and we strive for everyone to have a balance between their work and personal lives."

The Arbitron Company
Columbia, MD

For five decades, Arbitron has been helping the broadcast industry understand who's watching/listening, when and to what. "We are the media information services company for the broadcast industry," explains Tony Gochal, senior organization effectiveness consultant. We provide the data that helps in constructing the buy/sell of advertising time."

The company is quickly moving from a paper-based method of collecting data and then crunching it to electronically monitoring, listening and viewing habits, downloading data, crunching it and providing it to customers electronically. "The biggest challenge we have is hiring highly skilled people to help us with this expansion," says Gochal. "We're developing new survey instruments, a webcast rating system to examine how people are interacting with streaming media, and handling huge databases."

Arbitron needs people who have worked with databases, data warehousing and data mining. The company also needs highly skilled system architects. "These are big systems with big databases," Gochal says. "We're developing all new tools, such as the portable people meter, a small device similar in appearance to a pager, which helps track your interactions with media. This passive type of measurement is heavily reliant on software."

Gochal looks on resumes for a mix of experiences, knowledge of UNIX, Oracle, C++, object-oriented design and Java, as well as Internet development. "We are a team-oriented organization, where employees are involved in development and interacting with the user community, testing and documentation."

Arbitron uses some simple factors to attract and keep employees. "Your experience at Arbitron is based on results," says Gochal. "It's a friendly place to work, where you'll be adding skills and experiences to your resume, and where people hired for experience and knowledge are rewarded for applying them."

NetEffect Corporation
Reston, VA

In just 24 months, NetEffect has grown to more than 330 employees and nearly 100 clients, providing services in architecture and infrastructure, converged applications, and management/measurement. The company offers engineers the opportunity to cross all three business areas with customers such as ICG Communications, AT&T Solutions, AT&T, MCI/Worldcom and Nextel Communications.

NetEffect works with companies to bring together the varied technologies that support ATM and voice over. In addition to setting up computer telephony, interactive voice and web-enabled call centers, NetEffect assesses needs, designs infrastructures, installs them, and performs capacity planning, modeling and simulation. As a Cisco Professional Services Partner, NetEffect frequently is called upon to participate in Cisco engagements.

"We look for Cisco-certified engineers, voice engineers and people who have experience in project management and analysis," says Lisa Gaulding, recruiting manager. "We are configuring backbone systems for converged technologies. For instance, in our converged applications we're combining computer telephony with interactive voice, PBC and web-enabled call centers." Consulting skills are critical for employees. "We work in a client environment," says Gaulding.

"One of our differentiators is our state-of-the-art NetCenter at our Atlanta headquarters. Our NetCenter boasts of operability and verification labs, demo labs for all lines of business and in-house training courses. Having the opportunity to work with and train on the latest technologies is a great development tool for building your career," Gaulding says.

thinkXML, Inc.
Rockville, MD

Founded in 1995, thinkXML has made the transformation from an IT software development and consulting firm to an XML software products company.

"We provide XML software products that enable XML business-to-business systems to communicate with the entire marketplace. Our products connect diverse front-end browsers and IP devices with diverse back-end enterprise systems," explains Kimberly Dillard, thinkXML's marketing manager.

In July the company rolled out its new product, thinkXML2000®, version 1.5. "We use open standards and incorporate leading-edge technologies into all of our products," Dillard explains. "We're changing the way companies do business online and the way online business transactions occur."

With the launch of its new products, recruitment has become a major initiative within the company. "We are hiring VB, Java and XML developers, sales, business development and marketing people," says Naomi Pollard, director of administration and human resources. The company currently has 45 employees and plans to hire an additional 50 people this year. "We offer all the standard benefits, stock options, and cutting-edge technologies," adds Pollard. "The basics are a given, but you also get a great culture. We've made a huge commitment to education by hiring top master trainers and creating a collaborative learning environment. Seminars are held once a month to teach emerging technologies."

Pollard says thinkXML also offers a sabbatical program. "If you've been with the company for three years, you get 30 days off, paid with full benefits. It demonstrates the company's interest in your interests. We believe smart people have many endeavors so we want them to go out, learn something new, experience something different, and bring the knowledge back," she explains. At five years, employees get a 90-day sabbatical, and at seven years a 180 day sabbatical.

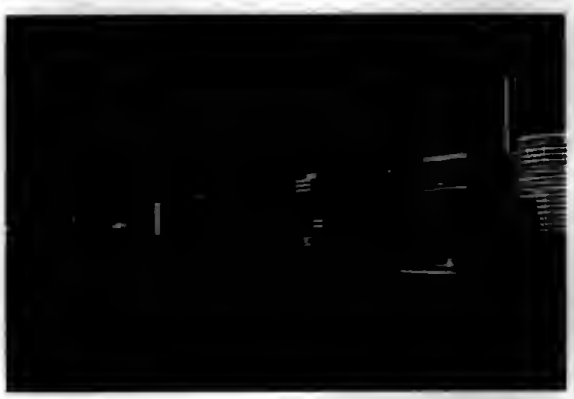
For more job opportunities in Washington, DC turn to the pages of IT Careers.

If you'd like to take part in an upcoming IT Careers feature, contact Janis Crowley, 650.312.0607 or janis_crowley@itcareers.net.

Produced by Carole R. Haddan
Designed by Aldebaran Graphic Solutions

IT Careers in Portland

It's one of the corners of the country where people believe they can have it all. High tech companies line the roadways, offering a range of opportunities to IT professionals. There's the outdoors, skiing, the beach - all nearby. The ballet, the symphony and the arts scene put the finishing strokes on this perfect painting. It's Portland, where companies tout the lifestyle as much as the professional opportunity. The city itself is a model for urban development, where green space is preserved and boundaries are placed on how and where the community will grow.



Nike, Inc.
Beaverton, OR

Best known for its ads, athletic footwear and apparel, Nike boasts of more than its contract with Tiger Woods. Nike, with its distribution of products and affiliations with contract manufacturers around the world, has an extensive information technology architecture that serves as the enabler of its business operations.

"Nike is in the midst of a multi-year project to shift from legacy systems to application systems, particularly in the Nike supply chain (NSC) group," explains Ed Flaherty, NSC IT recruiter. "We go live with our first country, Canada, in November."

The NSC group, which at one time was decentralized around various business units, is a business entity itself, demonstrating the important role the supply chain will play in the future. Nike is moving more than $800 million in product every month, relying on its supply chain to meet customer product delivery deadlines and increasing demand. In addition, the company has established Nike.com, providing yet another IT venue for those looking for a challenge.

"We're looking for people who have experience in large projects, particularly with implementation of SAP, Siebel and i2," says Flaherty. "We're working to implement an array of application modules while making sure that everything is talking together and need people with technical skill, energy and ideas. The beauty is that our new architecture is a living, breathing entity - we'll continue to move forward, keeping it current and apace with the technology available."

Flaherty says he'll hire about 50 more IT professionals by year-end, a marked contrast to past years when Nike relied heavily on contract IT professionals. "We've changed our philosophy and want full-time people. Over the long term, the supply chain is a critical component to how our business operates. We can't afford the brain drain that occurs when a contractor leaves."

To assure that employees remain with Nike, the company has its Coaching for Excellence program. "Twice a year, every employee sits with the person he or she reports to discuss where you are, what you want to do and what you want to learn. We then help you get there," he says. "Employees take part in workshops and seminars, certification workshops and courses."

"We don't talk about an individual profile for Nike or about whether people 'fit'. We want people who can contribute, who are energetic and bright and who want to participate in a team environment," adds Flaherty. "We strive for excellence, provide a one-of-a-kind campus environment, and provide the tools you'll need to challenge yourself, support your work and be successful."

Tektronix, Inc.
Portland, OR

While the Internet, connectivity and the fastest growing technologies in the planet converge, Tektronix is providing the test and measurement tools that monitor and access every electronic signal and its path.

"We provide the measurement and monitoring tools for high speed data and electrical/optical signals," explains Janet Britton, Tektronix vice president of human resources. Among the company's most well known products is the oscilloscope, which verifies electronic signal integrity.

"As with most companies, our biggest challenge is attracting top talent," adds Britton. "We are growing and offer exciting projects to work on. We've been very successful in growing the past 12 months and must sustain those growth expectations. A key part to doing so is attracting and keeping top employees."

Patty Nelson, manager of university relations, points out that many of the tools developed by Tektronix are software-based. "Our boxes look like hardware, but inside is the very sophisticated software that leverages our ability to help customers monitor and maintain their service."

Tektronix currently has 4,200 employees in 26 different countries. "In 2000 we need to hire about 500 more people," says Britton. "The majority of IT work is done here in Portland, but we also have software engineers in India, Germany and Italy. You'll continue to learn, gaining new skills and knowledge through what you do on the job, through job rotation, global assignments and an opportunity to grow in the IT field or into management."

In addition, Tektronix offers telecommuting and flex hours. "You'll have the chance to work on cutting-edge kinds of work with world-renowned experts - the people who hold the patents on developing these technologies. We encourage this continued discovery.

"People come and stay with Tektronix," adds Nelson. "In the scheme of things, you will be a significant player. The work sells itself, as does the area and the environment. We're big enough to offer advantages, but small enough that you will be a needed part of the business."

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- **Sr. Production Support Managers**
- **Smalltalk Developers, Team Leads and Architects**
- **Implementation Managers**
- **Project Owners/Managers**
- **Sr. Analysts-Software Configuration/Deployment**
- **Software Metrics and Process Improvement Analysts**
- **BroadVision Developers & Leads**
- **Legacy Data Architects-Sybase/Oracle**
- **e-Business Oracle Data Modelers**
- **C, UNIX, Sybase, Tuxedo, HTML Developers & Team Leads**
- **CORBA, OD, JAVA, C++ Team Leads and Developers**
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- **Sr. Telecom Software Requirements Analysts**
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* Findings are the result of a 1999 national survey of 2,000 registered NAACP Career Fair attendees.

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PHILADELPHIA, PA Tuesday, September 12 Latest Philadelphia Hotel	LOS ANGELES, CA Monday, September 25 LAX Sheraton Gateway Hotel	DALLAS, TX Tuesday, October 3 Hyatt Regency Dallas	HOUSTON, TX Tuesday, October 17 Houston Astrodome USA
NEW YORK, NY Tuesday, September 19 Manhattan Marriott Marquis Hotel Times Square	CHICAGO, IL Tuesday, September 26 Hyatt Regency Chicago	DETROIT, MI Tuesday, October 17 Southfield Civic Center Complex	WASHINGTON, DC Wednesday, October 18 McLean Hilton Hotel

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Final Filing Date: September 22, 2000

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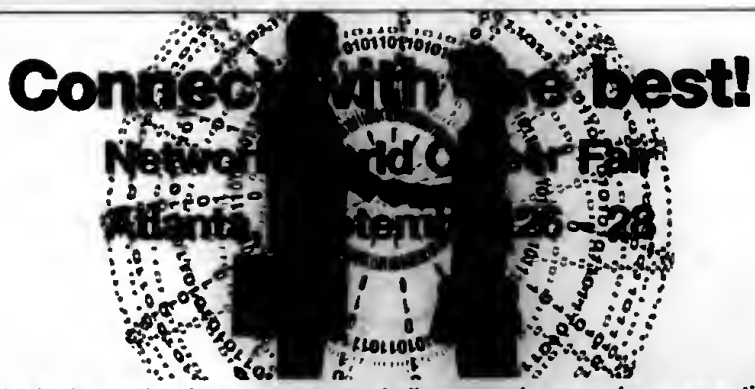
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Senior Network Administrator needed to design, develop, and maintain large secure web servers and communications functions. Must supervise technical support staff. Must have M.S. in Comp. Sci. + 2 years relevant exp. Reply to Srini Nemani, Princetec, Inc., 4365 Rte. 1 South, Princeton, NJ 08540.

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Computer Programmer wanted by Co involved in comp s/ware for govt agencies in Arlington, VA for yrs location in Baltimore MD. Must have BS in Software Engg. Respond to: HR Dept, ROH, Inc., 2611 Jefferson Davis Highway, Ste 700, Arlington, VA 22202-4016.

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Database Administrator

Dallas, TX

The selected professional will be responsible for designing, testing and providing implementation support for Oracle UNIX Systems. Other duties include installation, maintenance, change management, SQL performance monitoring and tuning, and problem management and tracking. Requirements include a BS in MIS, IT or related field and 2 years of relevant experience. Must have Oracle and/or DB2, and mainframe (COBOL, JCL) experience.

Please forward resume, salary requirements and Job Code: **CW00-0023757** to Bank of America, NC1-021-03-15, 401 N. Tryon St., Charlotte, NC 28255; fax (800) 421-6477; email careers@bankofamerica.com. Bank of America is an Equal Opportunity Employer. M/F/D/V.

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FLIGHT SIMULATION

Thomson Training & Simulation, Inc., an international leader in flight simulation, has immediate openings for Navigation and Avionics Systems Engineers in its Tulsa location. These positions involve development and test of software and hardware used in the real time simulation and stimulation of aircraft avionics and navigation equipment on military and civil flight simulators. Requires a BS in Engineering or Physics and three years relevant experience with avionics equipment developing software models and interfaces. Experience must include programming with FORTRAN and/or C in UNIX and Windows NT environments. TT&SI offers an excellent benefits package, including medical, dental & life insurance, paid vacation, retirement plan & 401k plan. Qualified candidates should send a resume and salary history to: Thomson Training & Simulation, Inc., 5233 A South 122nd East Avenue, Tulsa, OK 74146-6001, FAX 918-461-1849, jprovine@flitrul.com 918-461-1999 x 428. EOE

Computers: Software Engineer sought by door fabrication co in Houston, TX. Must have M.S. in Comp Sci. or Elec. Engg + 1 yr exp. in graphic user interface networking & cross-platform. Respond to HR Dept. DR/HY Southern Millwork Company, 10435 Okanella Street, Houston, TX 77041

Systems Analyst. 40 hours/wk from 9AM to 5PM. $60,000/yr. Design, develop software using AS/400, RPG/400, CL/400, SQL/400, APPC. Requires Bachelor of Science degree in Computer Applications and 1 year experience on job offered. Applicants must show proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street - 7 North, Chicago, IL 60605. Attn: Ms. Lydia Clarke. Reference #V-IL 23671-E. An employer paid Ad. No calls. Send two copies of both resume and cover letter.

Software Engineer - MIS, E-Commerce. BS in any Computer/Engineering field. Min. 2 yrs experience as Software Engineer, developing & maintaining both software & hardware for E**Commerce visual environment, both LAN & Internet, designing, developing, creating, maintaining all aspects of EDI process, & developing EDI transactions for E-Commerce, using EDI X12 standards. Must interface EDI transactions to SAP R/3, & integrate & transfer between Visual FoxPro & MS SQL/C++ Strong EDI, SAP R/3, Visual FoxPro, 3-tier exchange, MS SQL MS Exchange Server, C++, ASP Programming, LAN & Web-based development tools required. Respond to Director, IS, CCI Technologies, 15181 Springdale St., Huntington Beach, CA 92649. FAX (714) 903-5398.

Principal Software Engineer. Scottsdale AZ. Duties: Develop software components for use by engineering groups, using Windows NT & 95 on UNIX and VMS client-server and distributed systems. Dev relational databases. Req: B.S. in Engineering, Computer Science or related field and 2 years exp. in the job offered or as Software Consultant. EOE. Salary $90,000/yr. 40 hrs/wk. Send resume (no calls) to: Jenny Haynes, H/R Admin., 7320 E. Butherus Drive, Ste 202, Scottsdale, AZ 85260

Network Engineer wanted by Software Dvlpt & Internet Services Co in Fremont, CA. Must have Bach in Comp Sci, Elec Engg or related field & 1 yr Network exp. Respond to: HR Dept., ArcSoft, Inc., 46601 Fremont Blvd., Fremont, CA 94538.

Brooktrout Technology seeks to hire various level of Applications Engineers to provide applications development support by telephone and at customer sites and design applications for customers. Candidates must possess a degree in Computer Science, Engineering or a related field. Some positions require industry experience. Higher level positions require an advanced degree. If interested and qualified please forward your resume to Human Resources, Brooktrout Technology, 161 Albright Way, Los Gatos, CA 95032. EOE. Principals Only.

Sr. Creative Director. Duties: Plan, direct & coord. the design & develop. of high quality graphic images & web sites to effectively promote products, projects, corp. branding & identity. Direct, coord. & manage a team of graphic artists & communicate with co. clients to assess creative needs & formulate creative strategies based on those needs. Develop graphic designs, graphic elements, web front-end prototypes, corporate logos & brand imaging using Quark Express, Adobe Illustrator, Adobe Photoshop and PowerPoint on Macintosh, Windows 95 and UNIX platforms. Requires: Bach.'s (or foreign equiv.) in Graphic Design, Art Design or a closely related field and 3 yrs. exp. in the job offered or 3 yrs. exp. as an Art Director or Sr. Graphic Designer. Exp., which may have been obtained concurrently, must incl. 3 yrs exp. using Quark Express, Adobe Illustrator and Adobe Photoshop. EOE. 40 hrs./wk. Salary: $70,000/yr. Send resume (no calls) to: Tim Allen, marchFIRST Inc., 311 S. Wacker Dr., Ste 3500, Chicago, IL 60606.

GOTTSCHALKS

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Gottschalks Department Stores, with over 70 stores on the West Coast and growing, has an immediate opening for a full-time experienced Programmer Analyst. This professional opportunity will be based in our corporate office in Fresno, California. The ideal candidate will possess a minimum of 4 years experience in browser based client/server development technologies in a Unix/Oracle or NT/Oracle environment. Should be proficient in Oracle developer toolset, C/C++, and PL/SQL. Bachelors degree preferred, experience with retail packages a plus. Gottschalks offers excellent company benefits and career opportunities. Benefit package includes medical/dental/vision/401(k).

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E-Mail: hr@gottschalks.com

G O T T S C H A L K S

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Manages the work of a team of software engineers and technical managers to ensure quality and timeliness of product development. Responsible for the research and development of software products and scheduling within business unit. Coordinates the work of the business unit manager to achieve R&D team objective. Designs and develops major software applications for domestic and international publishing industry. Internet applications, and/or relational database management systems in a client/server environment. provides functional analysis related to design, development and implementation of software on multiple platforms using C/C++ programming languages in Windows and Macintosh environments. Recruits engineers and technical managers. Requires B.S. or foreign equivalent in computer science, mathematics, engineering or related field. 2 years experience in job offered or 2 years as software manager or team leader. $84,476/year. Location of job: Denver, Colorado. 40 hr. week. Application by resume only. Submit two (2) copies of resume to Colorado Department of Labor and Employment, Employment Programs, ATTN: Jim Shimada, Two Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117 and refer to job order number CO4676525.

COMPUTER

Healtheon / WebMD has job opportunities in the following locations: California (Santa Clara), Georgia (Atlanta), Minnesota (Plymouth), New York (Amherst), Ohio (Cleveland), Texas (Dallas), and in other areas across the United States:

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Programmer Analysts
Program Managers
Medical Editors
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Please submit resume online at: www.webmd.com/corporate/index.html; e-mail: html-webmd@rpc.webhire.com; fax (408) 376-5300. When applying you must include appropriate position desired.

See our website for additional openings. www.webmd.com. EOE M/F/D/V

Analyst/Programmer III. Educaid, a First Union Company, interpret business reqs & define tech. alternatives, tools & platforms. Develop & modify computer architectures. Work w/ multiple network envir. such as Novell, Windows NT, Microsoft Lan Manager. Apply knowledge of programs such as Progress Version 8.1 WebSpeed Version 3.0, Actuate Report Writer and BottomLine Technologies. Paybase 32 software. Reqs. BA in Computer Science & 3 yrs of exp. The 3 yrs must have been gained in the position offered or as a Software/Senior Consultant or Engineer & must have included wk developing software using Progress Version 8.1 or higher, WebSpeed Version 3.0 or higher and two (2) years of the required experience must have been gained developing applications using Actuate Report Writer, BottomLine Technologies and Paybase 32 software. Send resume to Paul Anetta, 3301 C Street Suite 201, Sacramento, CA 95816

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Wal-Mart Information Systems Division; Attention: Recruiting Department ITC; 702 S.W. 8th Street; Bentonville, AR 72716-9050; Fax: 501-273-6979; E-mail: mavinte@wal-mart.com. For more information, call toll-free: 1-888-JOBS-IID or check out our career page at: www.walmartstores.com

WAL★MART

EOE M/F/D/V

Sr. Consultant: Job location: Irving, TX. Duties: Perform data migration & Standard Data transfer procedures including SAP standard programs, BDCE & ALE master data distribution. Support configuration requirements across different function modules. Perform technical requirements planning. Plan & manage the technical scope & its resources. Provide support to lead configurators. Establish SIS, Inventory & Controlling into System. Provide ABAP support for upgrade 3.1h to 4.6b. Perform conversion of legacy data to SAP. Interfaces & report development. Develop conversion programs using BDC & Direct Input methods. Develop reports, create dictionary objects & dialog programs. Provide remote support to customers. Requires: Master's or foreign equiv in Comp. Applications/Comp./Info. Sci. plus 2 yrs exp. in the job offered or 2 yrs exp. as a SAP Consultant. Exp. which may have been obtained concurrently, must include: 2 yrs exp. using & designing SAP Systems. Send resume to: Tom Allen, marchFIRST Inc., Ste 3500, Chicago, IL 60606.

Multiple openings for Software Engineers and Software Project Managers in a Peoria, Illinois based energetic start-up company. Requires BS or MS Degrees in Electrical Engineering or Computer Science or related field with 0-2+ years experience in Embedded System C++/VC, or Java/J2FC, and Object Oriented programming. Project Managers must have technical skills and at least 3 years of IT project management. Strong analytical skills. Send email to jobs@visual-x.com or fax to (309) 692-0988

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Job opportunities are also available for Sales Managers, Marketing Managers, Business Managers, Human Resources Managers, Controllers and Technical Recruiters. Bachelor's or Master's degree required, depending on position. We also accept the foreign educational equivalent of the degree or the degree equivalent in education and experience. Excellent benefits. Send confidential resume and salary requirements to: CyberTech Systems, Inc., 1111 W. 22nd Street, 8th Floor, Oak Brook, IL 60523 OR a Newsgroup Interprise, Suite 209, Trevose, PA 19053. An equal opportunity employer.

Senior Analyst. 40 hours/wk from 9AM to 5PM. $60,000/yr. Design, develop software using RPG/400, CL/400, COBOL/400, SQL/400, APPC, and APPN under AS/400 environment. Requires Bachelor of Science degree in Computer Science or Mechanical Engineering and two years of experience in job offered. Applicants must show proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street - 7 North, Chicago, IL 60605. Attn: Ms. Lydia Clarke. Reference #V-IL 23654-E. An employer paid Ad. No calls. Send two copies of both resume and cover letter.

IT Professionals required in Little Rock, AR for: (A) or (B) or (C) or (D) or (E): (A) Design, implementation, maintenance, Security, Backup/Recovery and testing of: (i) LAN/WAN/Enterprise (4/W and (ii) MS Exchange Web server, Terminal Servers, Desktop Deployment & S/ware Distribution. (B) Visual Studio, Java, C++, Oracle Dev2000, MTS, MSMQ, COM, ActiveX, SQL, DBA, MCSD, OCP. (C) HTML, SGML, DHTML, XML, ASP, VBScript, CSS, MCSD, MCP. (D) COBOL, CICS, Db2, IMS, VSAM, TCL, PL/I, DBA, S/370, ES9000, ADABAS, Natural. (E) ERP systems: SAP, ORACLE, PEOPLESOFT. BS or MS(or foreign degree equivalent)with 2yrs experience. Travel required. Please send resume & salary required to HR, Protech Solutions, Inc., 124 West Capitol, Suite 580, LittleRock, AR 72201 or HR@protechsoft.com

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Verify and validate software designs and implementations that meet established quality standards, including internal and external customer requirements and expectations. Participate in software requirements and design reviews to establish these reliability standards and guarantee fundamental testability of products. Other responsibilities include software test plans, software risk evaluations, and evaluation reports. The ideal applicant has a graduate technical degree or BS with 2 years software development and/or medical testing experience. Other requirements include time in software design, knowledge of FDA Medical Device QSRs, design techniques, and training in web based automated test tools. Sybase database experience preferred. Job code: GEMS 167821 AN090

WEB DEVELOPER
Assess project requirements and design according to these requirements, conduct alpha/beta testing, explore and test new technologies, and deploy new systems while older legacy systems migrate to decommissioned status. Qualifications include a BS in computer science (or related discipline), 1-3 years' experience with Internet-based applications, proven web development capabilities, and knowledge of HTML, production and operating systems like Windows NT and UNIX. Experience with server-side Java scripts also a must. Job code: GEMS/210729 AN090

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Systems Analyst: Design, develop and analyze manufacturing applications for IBM AS/400 computer using RPG/400 language and AS/400 application tools; evaluate operational systems and recommend improvements or replacements; develop system testing and conversion procedures; prepare specifications for systems and programming.

BS degree in Computer Science or Engineering required. 2 years experience in the position or 2 years as an Analyst &/or Project Manager required. Experience in related occupation must include the design and development of applications using AS/400, RPG/400 and AS/400 tools.

40 hrs./wk. 9:00 a.m. - 5:00 p.m. $58,650/year. Must have proof of legal authority to work permanently in the U.S.

Send 2 copies of both resume and cover letter to Illinois Department of Employment Security, 401 South State Street, 7 North, Chicago, Illinois 60605. Attn: Leonard Bokas. Refer V-IL-23260-B. NO CALLS. AN EMPLOYER PAID AD.

Webmaster full time position for motivated team orientated professional with excellent customer service & communication skills. Leads organization to determine direction for Web-portal development including programming, design maintenance and administration. Works with Network Engineer in the administration of local & wide area network hardware and software. Two to five years experience in web development, programming and administration required. Bachelors degree in Computer Science preferred or equivalent work experience in lieu of. We are a 305 bed acute care facility located in Wenatchee, WA at the foothills of the Cascade Mountains with four distinct seasons, variety of outdoor activities, excellent quality of life features. Starting salary with applicable experience and $50,000. Excellent benefits, interview and relocation allowance. contact Jo Wavra, Human Resource Department 1-800-385-6428, ext. 2734, fax resume 509-665-6032, e-mail Jwavra@confie.com. EOE.

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Responsible for providing network engineering support for Internet backbone. Will create engineering solutions to complex problems that arise through new service offerings, customer demand & emerging technologies; provide expert knowledge to the specification & development of network infrastructure; devise plans for network expansion work implemented by infrastructure engineering team; provide third-level tech. support for network operations; deploy & test new network technologies into the network. Must have BSCS, EE or a related field + 3 yrs. exp. in technical capacity in network engineering design &/or implementation. Experience must include expert knowledge of LAN/WAN internetworking environment & TCP/IP, knowledge of routers & routing protocols, Internet registration & addressing, & DNS. Salary range is $75,000-$85,000.

Please send resume to: pharring@genuity.com or fax: (781) 262-7120. EOE. M/F/D/V.

Client Server Developer/Analyst I - Analyze information gathered from the client regarding business and technical requirements and objectives. Design simple elements of the business logic for the client/server application. Design and develop elements or portions of graphical user interfaces (GUIs) and screens. Code the business logic, GUI interfaces, and database interfaces using various programming languages. Research and resolve basic hardware and software problems and assist in designing the database structure. Develop and execute test plans for basic software enhancements and changes. Research and stay current on client/server related issues and technologies. Requirements: Bachelor's degree in Comp. Sci., Engin., Math or Information Systems and either one year of exp. in job offered or one year of exp. in software and/or system analysis and/or design. In lieu of a bachelor's degree and one year of experience the employer will accept a master's degree in one of the stated fields of study and no experience. 40 hrs/wk, M – F 8:00 am – 5:00 pm. Salary $45,980 per year. Apply to the LA Dept. of Labor, 1530 Thalia Street, New Orleans, LA 70130. (Job Order # 1683158)

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Programmer Analyst to analyze user requirements, procedures and problems to automate processing or improve existing computer system.

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Email: hrnsa@newbridge.com
Fax: 703-679-5118 EOE

The Mead Corporation is looking for the following positions:

Database Design Analysts

Position duties include evaluation and design existing or proposed computer systems to structure and access databases utilizing database design techniques to migrate data from Legacy system to SAP systems and designing databases for utilization in conjunction with the company's web based applications for both consumers and other business. The incumbent will use Access, Oracle, UNIX, HTML, Javascript, Frontage, VMS, and Windows NT to accomplish duties.

Applicants must have, at least a Masters degree in Computer Science, Engineering, Mathematics or Business, and 2 yrs exp in any computer related occupation exp must include design of databases and use of Access, UNIX, and VMS.

Resume and cover letter should be sent to: Mead Corporation, 1100 Circle 75 Pkwy, Ste 500, Atlanta, GA 30339. Attn: Human Resources Department.

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Web Content Delivery Competition Increases

Inktomi, Cisco set up separate alliances

BY JAMES COPE

SENSING AN OPPORTUNITY to profit from caching, Web content management vendor Inktomi Corp. [Nasdaq:INKT] and a group of other information distribution companies have announced an alliance designed to speed the delivery of Web content by pushing it closer to end users.

The alliance, called Content Bridge, aims to create an approach whereby producers and bosters of informatioo and e-commerce functions can pay a single intermediary — Adero Inc. in Bostoo — and have their content pushed to the caching servers of large Internet hosting, cootent delivery and access providers. These providers, which are also members of the alliance, include San Francisco-based Digital Island Inc. [Nasdaq:ISLD], Exodus Communications Inc. [Nasdaq:EXDS] in Santa Clara, Calif., and America Online Inc. [NYSE:AOL] in Dulles, Va.

Following the announcemeoot, Inktomi's stock price jumped nine points to close at 120.75 per share, then surged to 128 just before the market closed Aug. 30.

The success of Cooteot Bridge will hinge on the pricing and integration of the various services, says analyst Martin Pyykkonen at CIBC World Markets in New York.

Foster City, Calif.-based Inktomi is the catalyst of the group, Web infrastructure provider Adero does the grunt work and content delivery companies like Digital Island are trying to figure out what kinds of value-added services they can offer, Pyykkonen notes.

The alliance is a bold move, but it will take a while to really integrate the capabilities of the group's members, predicts analyst Robert Fagin at Bear, Stearns & Co. in New York.

Fagin says Content Bridge could compete with leading content distribution vendor Akamai Technologies Inc. [Nasdaq:AKAM] in Cambridge, Mass. Akamai colocates its special caching servers in the facilities of 225 large Ioternet service providers in 50 countries and sells the conteot delivery functioo as a service to Web hosting companies.

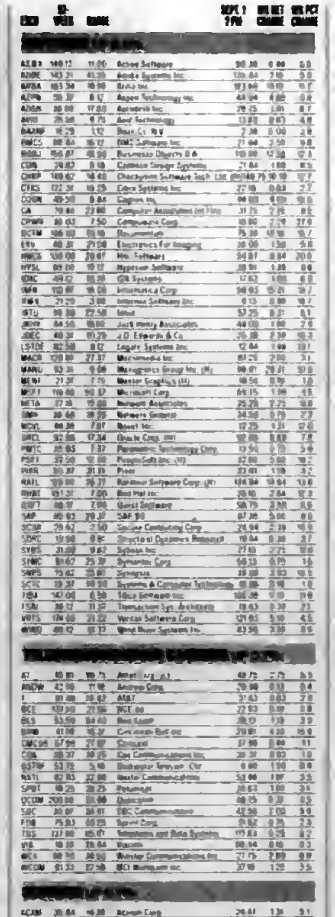
Akamai's stock price dropped four points to close at 65.19 per share Aug. 24, the day after the Inktomi announcemeot. But it moved back up to 72.50 in late trading Aug. 30.

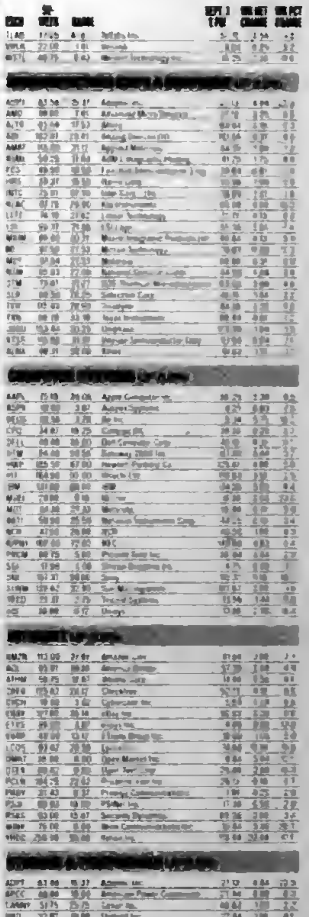
"I doo't see any oear-term threat [by Content Bridge] to Akamai," Fagin says.

The week after Inktomi's announcement, San Jose-based Cisco Systems Inc. [Nasdaq:CSCO] also jumped on the bandwagon with an organization called Content Alliance that, interestingly enough, includes one of Akamai's biggest customers, PSINet Inc. [Nasdaq:PSIX] in Ashburn, Va., as well as Digital Island and Genuity Inc. [Nasdaq:GENU] in Burlington, Mass.

Cisco spokeswoman Erica Schroeder says Content Alliance will focus on creating a set of open standards for content delivery and reporting, which it hopes to submit to the Ioternet Engineering Task Force in December.

Content Bridge's focus is on building a content merchandising system.





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IT Leaders Give Online Universities High Marks

Harcourt accreditation sparks debate about the quality of Web learning

BY JULEKHA DASH

HARCOURT General Inc.'s newly accredited online university has prompted questions from analysts about whether a Web-based school can capture the most critical element of a physical classroom — lively debate among students. But some information technology professionals argued that there is little difference between getting a degree on campus or over the Web.

IT leaders applauded the Massachusetts Board of Education's decision last week to accredit Harcourt Higher Education (HHE), a division of Chestnut Hill, Mass.-based publisher Harcourt General, saying the trend toward online education offers students a more convenient means of obtaining degrees.

"The more sources [of education] we have, the better," said Robert Baker, a systems consultant at Emergent Information Technologies Inc. in Newport Beach, Calif.

Harcourt isn't the only college offering online degrees. Accredited last year, Jones International University (JIU) — a division of JonesKnowledge.com Inc., an online learning products and software company in Englewood, Colo. — offers several online degrees, including an MBA for about $10,000. Several traditional colleges, including the University of Chicago and Stanford University, have moved into the online world as well.

Baker said taking online courses in global communications at JIU helped him integrate learning into his hectic work schedule, which includes frequent travel.

Baker said he has wasted thousands of dollars on courses that he had to drop because of sudden work-related travel.

"I can't turn down an assignment because I'm taking a course at UCLA," he said.

Gerry Giesler, a senior vice president at The Chubb Corp., an insurance firm in Warren, N.J., said a degree from an online school would neither help nor hurt an applicant. Putting too much emphasis on any degree — online or not — means you might not get the best person for the job, said Giesler, whose responsibilities include IT professional development.

But some observers question whether a university can offer coursework and tests online and ensure that students are actually doing the work themselves.

Cheating Happens

HHE President Robert Antonucci said the school has done as much as it can to enforce security measures, but he acknowledged that online schools can't do much to prevent cheating.

"If someone wants to beat the system, they probably can," he said.

However, Antonucci said, HHE attracts mostly older adults who take classes because they want to learn, so it's unlikely they would cheat.

One disadvantage of online degree programs is that they have yet to establish brand names or allow the same level of networking among students and professors as brick-and-mortar schools, said Mike Brennan, an analyst at International Data Corp. in Framingham, Mass.

But Baker dismissed concerns that online coursework is isolating, saying that online discussion boards enabled him to get to know fellow students as well as an instructor who taught from Helsinki, Finland. ▶

AT A GLANCE

Distance Learning

Details about Harcourt Higher Education:

- Will open virtual classroom in November
- Will offer bachelor's and associate degrees in business, health and IT
- IT education will include certification programs in project management, network systems integration and e-commerce
- Will charge $900 per three-credit course

Continued from page 1

Wireless LANs

basic fixed-cost issues, according to Gartner Group Inc. in Stamford, Conn.

At Wake Forest this year, the 650 freshmen received a wireless Ethernet card with their notebook PCs, which are included in their tuition. "It's really cool," Holly Shankle, a freshman from Hamlet, N.C., said last week. "I logged on to the network outside on one of the benches. And on the first day of Spanish class, I logged on from there, too."

The wireless rollout started earlier this year, when Jay Dominick, assistant vice president of information systems at the university, chose a 2M bit/sec. system instead of the emerging 11M wireless standard because the faster speed was fairly new at the time. But he's now looking down the road at high-speed wireless technologies that promise wirelike speeds of up to 100M bit/sec.

"We expect to see that in about 18 months," Dominick said, "and we'll look toward rolling out faster wireless when the technology becomes commercially available."

This fall, Carnegie Mellon University's wireless network has 400 antennae connected into the campus's wired backbone to provide 11M bit/sec. wireless access, said Traci Futhey, the university's CIO. Roughly 1,500 of the school's 10,000 students have purchased wireless LAN cards from the Pittsburgh-based university for about $150 to access the network, Futhey added.

"To talk about ubiquitous computing without a ubiquitous network is a misnomer," Futhey said.

Despite the broad coverage of the wireless network, Carnegie Mellon still supports and operates an extensive wired LAN, with drops in every dormitory and classroom. The campus backbone is connected to the outside world through a 30M bit/sec. pipe.

Joan Kuperstein, an educational technology consultant at Castle Technology Consultants Inc. in Chicago, said she believes future campus networks will be "a hybrid mix of wired and wireless," with wireless enabling schools to add access quickly and cheaply. Wireless mitigates some key concerns that educational information technology personnel face when trying to extend the reach of their networks.

STUDENTS ARE USING wireless Ethernet cards like these

For instance, many school buildings are old, are insulated with asbestos and have concrete walls that make installing wiring a messy and hazardous prospect.

But wireless also allows educators to take computers out of the lab and put them into the hands of students and teachers in classrooms, Kuperstein said. "Schools need to integrate this technology directly into the classroom. Going to a lab is a waste of time," she said.

Southeast Technical Institute in Sioux Falls, S.D., opted for a wireless network to alleviate a space problem, said Pat Walker, IT director at the state-supported school. "The amount of space needed for the labs exceeded the space we had available," Walker said.

Other schools have decided to roll out wireless slowly to meet specific requirements. For example, driven by its faculty's demand for more computer labs, Duquesne University in Pittsburgh elected to create a mobile unit. A rolling cart includes a wireless hub, wireless network cards and 20 iMac notebook computers from Apple Computer Inc. Cynthia Golden, executive director of computer services and technology at Duquesne, said the cart can simply be rolled into a classroom and computers distributed to students when a faculty member wants to use them in conjunction with lessons presented through courseware, such as that from WebCT Inc. in Peabody, Mass.

Although many universities and their students are excited at the prospect of anywhere, anytime wireless connectivity, Larry Rapagnani is looking at what he calls "some of the mechanical issues" before doing large-scale deployment of wireless. Rapagnani, assistant provost for IT at the University of Notre Dame in Notre Dame, Ind., said one issue is security. "If you can walk into a classroom with a notebook PC, you can also walk out the door with one," he said. There are also basic issues like battery life that Rapagnani said require some thought. ▶

Next week: Elementary and high schools join the act.

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FRANK HAYES/FRANKLY SPEAKING

Dirty little secrets

WHAT WERE THE PEOPLE at Sun Microsystems thinking? OK, we know what they were probably thinking: Their hottest servers, including the ones that are supposed to be replacing mainframes, were crashing. No one was quite sure why. Best to keep a tight lid on this so nobody panics before it's fixed. So Sun asked the customers hit by a faulty memory cache to sign agreements not to talk about the problem. Sun even told them that the gag agreement would strengthen Sun's commitment to solving the problem quickly [Page One, Aug. 28].

I'd like to think they really meant it, that concern for customers prompted the gag strategy. But how disconnected from reality would anyone have to be to believe that kind of secrecy is a good idea?

We'd have to assume that the engineers who created the problem are the only ones who can fix it.

We'd have to trust that customers aren't qualified to make decisions about whether to repair or replace defective products, even if they have the most complete information available — *especially* if they have the most complete information available.

We'd have to believe that every customer who experienced the glitch recognized it as a hardware problem and contacted the vendor, instead of writing it off as operator error or a software problem.

We'd have to pretend that publicity wouldn't put pressure on the vendor to throw more resources at finding a fix. And that having more people who know about the problem wouldn't produce more strategies for dealing with it. And that everything we know about how competition spurs quality is wrong.

OK, let's assume all that stuff. What's the result, after 18 months of secrecy since the problem was first reported? Sun's fix is to replace the processor module and recommend that customers rearrange the computer room so the server gets more air conditioning.

In other words, there is no fix, just a work-around.

Pretty sad, huh? And the situation's even sorrier for customers who switched to Sun over the past year and a half, while the gag strategy kept them from finding out about the problem. They're stuck with lemons.

You'd think with all the hoo-hab over Linux and open-source software, where every discovered bug and proposed fix is documented in open forums, that at least the *principle* of full disclosure would be the order of the day in IT.

But it's not. Sun's not alone. Intel did its best to bury recent Pentium III problems. Microsoft, SAP, IBM — the whole IT industry's reaction to a bug or quality problem is to deny, minimize and publicly insist there's nothing wrong.

There is no fix, just a work-around.

Why? Because bad news is bad for stock prices. Because high-profile emergency efforts to fix a problem pull resources from other projects, blowing budgets and screwing up schedules. Because admitting anything might trigger lawsuits.

But mostly because we let them do it.

We've got no real excuse. There are more sources of information for IT professionals and more forums for swapping intelligence with other users than ever before — user groups, Web sites, Usenet discussions. We can share more problems, fixes, work-arounds and recommendations with our peers, faster and more accurately, than at any time in history.

But we put up with nonsensical public pronouncements from vendors. We accept nonexplanations and sign gag agreements. In short, we roll over — and vendors roll over us.

So what were the people at Sun thinking?

Maybe they were thinking customers would let them get away with it.

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

GOVERNMENT AGENCY pilot fish finds a colleague's software model that does almost exactly what the fish's shop needs. Better yet, it's written in an advanced modeling language that accepts data in most common forms, without a lot of instructions, and automatically produces reasonable-looking output – no formal statements required. Perfect, the fish thinks – until the boss weighs in. "First thing I want you to do," he says, "is rewrite this model into Fortran so I can understand how it works."

DEVELOPMENT MANAGER for a real-time, mission-critical system makes sure he's got a 50% resource margin, just like the best practices say. That holds down both risks and costs – until he mentions it to a budget guy. "Next thing I know, our hardware budget is cut by 50%, since we obviously didn't need it," the fish says. Upshot: Development costs skyrocket. "I got ulcers," the fish grumbles. "The budgeteer got a bonus."

MANUFACTURING COMPANY gets spanking-new offices where the cubicle walls and desks are bolted to the floor. Desktop publishing workstations are right next to outside windows, with the sun hitting their screens all day. "Glare city," says a pilot fish. "Move the desk? Can't. Move the PCs? Can't. Buy blinds for the windows? Can't." Eventual solution: "Buy 'em a bigger monitor."

SECURITY-MINDED pilot fish rolls out Lotus Notes and gives users cryptic passwords. Users complain about remembering "78fon51" and "32tzr9a," but the fish is adamant – and no sticking 'em up on the monitor with Post-its, either. Then one day, troubleshooting a user's PC, the fish spots the Notes icon on the desktop – renamed "78fon51."

SOFTWARE START-UP'S CEO takes the finance VP aside to explain that he's about to slash the veep's pay by 50%. They need the money for a hotshot Java programmer who wants a big raise, says the big boss. Outraged VP packs up his stuff and is escorted out by the CEO and HR manager – but official word is that he's just "on vacation." Uh-huh. Word gets around, and a week later, Mr. Java Hotshot walks in and announces, "Guess what? I'm going on vacation too!"

Summer's over – no more vacations (or "vacations") at Sharky's shop. What about yours? Tell me about it: **sharky@computerworld.com.** You get a Shark shirt if your story prints – or turns up in the daily feed at *computerworld.com/sharky.*

The 5th Wave

E-mail richtennant@the5thwave.com

"Give him air! Give him air! He'll be okay. He's just been exposed to some raw HTML code. It must have accidentlig flashed across his screen from the server."

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